Über dieses Buch

Dies ist ein digitales Exemplar eines Buches, das seit Generationen in den Regalen der Bibliotheken aufbewahrt wurde, bevor es von Google im Rahmen eines Projekts, mit dem die Bücher dieser Welt online verfügbar gemacht werden sollen, sorgfältig gescannt wurde.

Das Buch hat das Urheberrecht überdauert und kann nun öffentlich zugänglich gemacht werden. Ein öffentlich zugängliches Buch ist ein Buch, das niemals Urheberrechten unterlag oder bei dem die Schutzfrist des Urheberrechts abgelaufen ist. Ob ein Buch öffentlich zugänglich ist, kann von Land zu Land unterschiedlich sein. Öffentlich zugängliche Bücher sind unser Tor zur Vergangenheit und stellen ein geschichtliches, kulturelles und wissenschaftliches Vermögen dar, das häufig nur schwierig zu entdecken ist.

Gebrauchsspuren, Anmerkungen und andere Randbemerkungen, die im Originalband enthalten sind, finden sich auch in dieser Datei – eine Erinnerung an die lange Reise, die das Buch vom Verleger zu einer Bibliothek und weiter zu Ihnen hinter sich gebracht hat.

Nutzungsrichtlinien

Google ist stolz, mit Bibliotheken in partnerschaftlicher Zusammenarbeit öffentlich zugängliches Material zu digitalisieren und einer breiten Masse zugänglich zu machen. Öffentlich zugängliche Bücher gehören der Öffentlichkeit, und wir sind nur ihre Hüter. Nichtsdestotrotz ist diese Arbeit kostspielig. Um diese Ressource weiterhin zur Verfügung stellen zu können, haben wir Schritte unternommen, um den Missbrauch durch kommerzielle Parteien zu verhindern. Dazu gehören technische Einschränkungen für automatisierte Abfragen.

Wir bitten Sie um Einhaltung folgender Richtlinien:

+ *Nutzung der Dateien zu nichtkommerziellen Zwecken* Wir haben Google Buchsuche für Endanwender konzipiert und möchten, dass Sie diese Dateien nur für persönliche, nichtkommerzielle Zwecke verwenden.

+ *Keine automatisierten Abfragen* Senden Sie keine automatisierten Abfragen irgendwelcher Art an das Google-System. Wenn Sie Recherchen über maschinelle Übersetzung, optische Zeichenerkennung oder andere Bereiche durchführen, in denen der Zugang zu Text in großen Mengen nützlich ist, wenden Sie sich bitte an uns. Wir fördern die Nutzung des öffentlich zugänglichen Materials für diese Zwecke und können Ihnen unter Umständen helfen.

+ *Beibehaltung von Google-Markenelementen* Das "Wasserzeichen" von Google, das Sie in jeder Datei finden, ist wichtig zur Information über dieses Projekt und hilft den Anwendern weiteres Material über Google Buchsuche zu finden. Bitte entfernen Sie das Wasserzeichen nicht.

+ *Bewegen Sie sich innerhalb der Legalität* Unabhängig von Ihrem Verwendungszweck müssen Sie sich Ihrer Verantwortung bewusst sein, sicherzustellen, dass Ihre Nutzung legal ist. Gehen Sie nicht davon aus, dass ein Buch, das nach unserem Dafürhalten für Nutzer in den USA öffentlich zugänglich ist, auch für Nutzer in anderen Ländern öffentlich zugänglich ist. Ob ein Buch noch dem Urheberrecht unterliegt, ist von Land zu Land verschieden. Wir können keine Beratung leisten, ob eine bestimmte Nutzung eines bestimmten Buches gesetzlich zulässig ist. Gehen Sie nicht davon aus, dass das Erscheinen eines Buchs in Google Buchsuche bedeutet, dass es in jeder Form und überall auf der Welt verwendet werden kann. Eine Urheberrechtsverletzung kann schwerwiegende Folgen haben.

Über Google Buchsuche

Das Ziel von Google besteht darin, die weltweiten Informationen zu organisieren und allgemein nutzbar und zugänglich zu machen. Google Buchsuche hilft Lesern dabei, die Bücher dieser Welt zu entdecken, und unterstützt Autoren und Verleger dabei, neue Zielgruppen zu erreichen. Den gesamten Buchtext können Sie im Internet unter `http://books.google.com` durchsuchen.

This is a reproduction of a library book that was digitized by Google as part of an ongoing effort to preserve the information in books and make it universally accessible.

Google™ books

https://books.google.com

Digitized by Google

ENGINEERING LIBRARY

THE UNIVERSITY
OF ILLINOIS
LIBRARY
625.05
TR
v. 67

ENGINEERING

Digitized by Google

Digitized by Google

Digitized by Google

THE TRAMWAY AND RAILWAY WORLD

AN ILLUSTRATED REVIEW OF PROGRESS IN ELECTRIC AND OTHER TRACTION

WITH OMNIBUS AND COACH SECTION.

Established in 1892

Index to Volume LXVII

January-June

1930

LONDON:
THE TRAMWAY AND RAILWAY WORLD PUBLISHING COMPANY, LIMITED,
AMBERLEY HOUSE, NORFOLK STREET.

Digitized by Google

INDEX TO VOLUME LXVII

January-June, 1930.

ARTICLES MARKED THUS* ARE ILLUSTRATED.

PAGE

A

Aberdeen's Fleet of Albion Omnibuses* .. 44
Accidents, Conference on Traffic 95
Advantages and Limitations of the Tramcar, Trolley and Motor Omnibus (R. H. Wilkinson) 94
Air and Rail Goods Service 75
Albion Omnibuses for Aberdeen Corporation* 44
All-Steel Open Tramway Car* 21
American Electric Railway Association .. 75
American Tramway Industry 75
American Transportation Developments in 1929* 17
Apparatus for Hoisting Tramcars* 127
Associated Equipment Company's Coaches for Continental Tours* 268
"English Electric" Trolley Omnibuses* 156, 247, 339, 343
Omnibuses for L. & N.E. Railway* .. 215
"Regal" Coach in Express Work* .. 267, 269
"Regal" Demonstration Car 45
"Regent" Engine* 147
"Regent" Omnibuses* 97, 215, 271
Automatic Electric Brake at Chesterfield .. 141
Automatic Substations, English Electric* .. 183

B

Baldwin-Westinghouse Combination Storage Battery, Third-Rail and Pantagraph Locomotive* 19
Belfast Rolling Stock Programme 79, 249
Belgium Six-Wheel Trolley Omnibus* .. 245
Bennie Railplane System* 186
Berlin's Transport System: Report by Glasgow Deputation 327
Bermuda Electric Railway 198
Birkenhead Tramcar Reconstruction .. 20
Birmingham and Co-ordination 96
Birmingham Double-Deck Omnibuses* .. 215
Double-Deck Tramcar* 14
Sleeper Track Tramways* 119
Traffic Control Committee 36
Bogie Cars on Milan Tramways, Large* .. 9
Bombay Conference on Electricity Supply and Transport* 199
Brake, Westinghouse Servo* 146
Braking of Trolley Omnibuses 141
Braking System for Motor Vehicles .. 45
Bristol Motor-Coach Station 271
Bristol Omnibuses at Merthyr Tydfil* .. 152
Tramways and the Great Western Railway 36

PAGE

British Electric Traction Company 255
British Omnibuses for Sweden 271
Brown Boveri Electric Locomotives* .. 179
Bruce, Mr. J. K., Retirement of* 253
Budget and Motor Vehicles, The 269
Burnley Transport, New Manager of* .. 137

C

Calcutta Tramway Jubilee 329
Cardiff and Inter-Town Services 214
Charing Cross Bridge Scheme* 192, 258
Chester, Omnibus Services at 97
Chesterfield Trolley Omnibus Brake .. 141
Clough Trolley Omnibuses 95
Coach, Omnibus and Tramcar Seating .. 210
Commercial Vehicle Production in 1929 .. 213
Conference on Traffic Accidents 95
Continental Tours, A.E.C. Coaches for* .. 268
Contracts and Orders, 31, 47, 75, 84, 99, 139, 148, 154, 155, 202, 203, 217, 259, 274, 331, 343, 346
Co-operation by Omnibus Workers 343
Co-operation of Employees 75
Co-ordination of Transport (Ashton Davies) 96
Coventry Transport, Assistant Engineer of .. 138
Covered-Top Omnibuses for Manchester* .. 149
Crossley Double-Deckers at Manchester* .. 213
Light Six-Wheelers, Tests for* .. 212
Spare Wheel Carrier* 267
Vehicle Designed for Shooting and Photography* 214

D

Daggett, Mr. A., Retirement of* 138
Derby Corporation, New Omnibus for* .. 153
Trolley Omnibus Powers 127
Diesel Electric Progress* 19
Diesel Engine Generating Station at Shanghai* 235
Diesel Six-Wheel Omnibus for Sheffield* .. 150
Double-Deck Omnibus at Glasgow* .. 151
Double-Deck Omnibuses, Weight of .. 213

E

Editorial 22, 76, 130, 194, 250, 302
Advance of the Trolley Omnibus .. 195, 303
British Street Railways 131
Canadian Electric Railway Progress .. 23
Channel Tunnel, A 195
Charing Cross Bridge 251
Conversion to Trolleybus Traction .. 303
Diesel Engine Progress 251
Future of Road Transport, The .. 130

Digitized by Google

625.1
TR
v.69

PAGE

Editorial (*contd.*)
Future Tramcar, The 303
Glasgow Monopoly, A 304
Glasgow Parliamentary Bill 304
Great Railway Power Station 194
Home and Empire, For 302
London Traffic Neglected 250
London's Transport Misfortunes .. 22
Lots Road Power Station 194
Medical Examination for Public Vehicle Drivers 252
Municipal Omnibus Powers 76
Municipal Omnibus Situation 130
Municipal Traffic Receipts, Improved .. 76
Noise from Tramcars 196
Northern Ireland Road Traffic Act .. 77
Notable Increases in Tramway Revenue 131
Omnibuses Bill, The 76
Progress of Canadian Electric Railways 23
Public Vehicle Drivers, Medical Examination for 252
Rejuvenated Tramways 250
Road Traffic Act for Northern Ireland .. 77
Road Transport, Future of 130
Street Railways, British 131
Tramcar of the Future 303
Tramway Revenue, Increases in .. 131
Trolleybus Traction, Conversion to .. 303
Trolley Omnibus, Advance of the .. 195, 303
Underground Electric Railway Power Station 194
Year of Progress, A 22
Egyptian State Railway Contract 75
Electrical Equipment of the Metropolitan Electric Pay-as-you-Pass Car* .. 12
Electrical Industry, The 140
Electric Locomotives :—
Baldwin-Westinghouse Combination* .. 19
Brown-Boveri* 180
Combined Rail and Adhesion* 181
Diesel* 20
Electric Railways :—
Bermuda 198
London and North-Eastern Suburban 196
Southern 69
Electric Shocks 24
Emergency Exits for Double-Deckers .. 213
Empire Advertising Club 270
English Electric Company :—
Automatic Sub-stations* 183
Financial Reorganisation Scheme .. 85
International Arrangements 304
Trolley Omnibuses* .. 156, 247, 339, 343
Exeter Corporation's Single-Deck Omnibus* 156

F

French Tramway Company, Shanghai, Power Station of* 235
Front Exit Cars, Advantages of 255
Fuel Oil for Petrol Omnibuses* 265

G

Gas Generator, The Godward 265
Gear Oil, A New 146
Gears, Tramway and Traction* (F. W. Rowe) 123
General Manager of London County Council Tramways (Mr. Thomas) 328
German Visitors Inspect Trolley Omnibuses 213
Glasgow Corporation's 50-Seat Omnibus* 151
Glasgow, New Omnibus Regulations for .. 208
Glasgow Omnibus Test Case 266
Glasgow Pullman Cars, Success of 300
Godward Gas Generator, The* 265
Government-Owned Tramways 132
Great Western Railway and Bristol Tramways 36
Guy Trolley Omnibuses for Italy and Belgium* 245

H

Hastings and Bexhill Trolley Omnibus System* 240, 315
Hastings, Omnibus Demonstration at* .. 337
Heavy Motor Car Amendment Order .. 269
High-Pressure Direct Current for Railways* 179
Hill Climbing Omnibuses in London* .. 147

I

"Individual Understanding," Review of .. 133
Institute of Transport 94, 96, 154
Institution of Automobile Engineers .. 44, 93
International Tramways, Light Railways and Omnibus Union 129
Irish Free State Omnibus Statistics 209

J

Jackson, Mr. A. A.* 138

K

Karrier-Clough Trolley Omnibus 95
Karrier Six-Cylinder Engine* 210
Kirkstone Pass Test for Overseas Vulcan* .. 209

L

Lamplugh Spring Seats 210
Lancashire and Cheshire Transport Council .. 271
Last "Gate" Tube Train Passes* 28
Layman's Approach to Philosophy, A .. 133
Leeds New Double-Deck Tramcar* 128
Leyland "Lion" Saloon Omnibus* 211
Liege Tramway Circle* 238
Light-Weight Manchester Car, New* .. 300
Local Authorities and New Omnibus Routes 271
London Circular Tramway Junction* .. 126
London County Council Tramways :—
Assistant Rolling Stock Engineer* .. 255
Charing Cross Bridge Scheme* .. 192, 258
Circular Tramway Junction* 126
Estimates for the Year 1930-31 254
General Manager, New 328
Holiday Traffic Record 300
New London Tramway Position .. 137
New Standard Car* 295
Retirement of Tramway Chief* (Mr. J. K. Bruce) 253
Salaries of Tramway Officers 135
Salesmanship Among Tramwaymen* .. 73
Subway Reconstruction* 69
Telephone Control of Traffic 141
Vestibule Car 121

762047

Digitized by Google

PAGE

London General Omnibus Company :—
Employees' New Uniforms* 44
Hill-Climbing Omnibuses* 147
Open Letter to Operating Staff 343
Quick Loading Omnibus* 91
Ticket Litter 268
Windsor Express Service* 267
London Luxury Omnibus, New* 91
L.N.E. Railway, A.E.C. Omnibuses for* .. 215
Suburban Electrification 196
London Subway Reconstruction* 69
London Terminal Coach Station and Hotel* 37
London to Edinburgh for One Pound .. 94
London United Tramways :—
Experiment with Trolley Omnibuses .. 78, 140
Top-Covered Car* 319
London Underground Electric Railways :—
Chelsea Power Station* 188
Exhibition of Safety Devices* 25
Last "Gate" Tube Train Passes* .. 28
London's Hill-Climbing Omnibuses* .. 147
London's Railway Figures 25

M

Manchester Corporation's Appeal to Motorists 150
Manchester—Double-Deck, Top-Covered Omnibuses* 149, 213
Light-Weight Car, New* 300
Order for More Omnibuses 148
Mandalay Tramways, Reconstructed Car on* 121
Manual of Electrical Undertakings 27
Materials for Tramways and Traction Gears* (F. W. Rowe) 123
Maudslay Low-Level, Single-Deck Omnibus* 156
Luxury Saloon* 267
Melbourne and Metropolitan Tramways Board* 132, 197
Metropolitan Electric Tramways :—
Electrical Equipment of Pay-as-you-Pass Car* 12
Further Lease 122
Milan Tramway Cars* 9, 320
Ministry of Transport :—
Conference on Traffic Accidents .. 95
Heavy Motor-Car Amendment Order .. 269
Weight of Double-Deck Omnibuses .. 213
Motor-Coach Stations :—Bristol 271
London* 37
Motor Traffic Notes 48, 100, 158, 218, 273, 346
Motor Vehicle Braking System 45
Motoring Offences in the Metropolitan Area 271
Mozley, Mr. Henry, Retirement of 271
Municipal Omnibuses and Petrol 268
Municipal Tramways and Transport Association : Meeting of Managers' Section 196
Municipal Transport Hire 271

N

National Omnibus and Transport Company 267
New Cars for L.C.C. Tramways* 295
Newcastle Corporation's "Regent" Omnibus* 97
Newcastle Transport Undertaking 82
New York, Vehicular Tunnel for 78
Noise from Tramcars, Reducing* 197

PAGE

"Northern General" Garage 274
Northern Ireland Fares Tribunal .. 79, 135
Northern Ireland Road Traffic Act .. 79
Traffic Bill Passed 36
Notes on Substituting a Trolleybus System for a Tramway* (W. Vincent Edwards) 307
Nottingham's Trolley Omnibuses* .. 151, 191, 247

O

Obituary : Ludwig Breitmeyer, 330 ; Lieut.-Col. Cradock, 30 ; Dr. S. Z. de Ferranti, 30 ; Peter Fisher, 139 ; J. R. Groves, 84 ; Ald. J. E. Pendleton, 258 ; Thomas Quinn, 30 ; Ald. T. Rushton, 84 ; D. Sinclair, 258 ; W. G. Snell, 139 ; J. W. Speight, 330 ; A. W. Tait, 258 ; W. G. Wylie, 330 ; Thorsten von Zweigbergk, 201
Omnibus and Coach Section 35, 89, 145, 207, 263, 335
Omnibus and Coach Services 46, 94, 98, 157, 216, 272, 344
Omnibus Demonstration at Tramways and Transport Congress* 337
Omnibus Purchase, Proposed Joint .. 210
Omnibus Regulations for Glasgow, New .. 208
Omnibuses Bill, The 90
Omnibuses for Newcastle, More 153
One-Man Car Operation in America 75
One-Man Cars of the Paris Public Transport Company* 65
Ordered Traffic Development in Birmingham* 119

P

Paris Public Transport Company, One-Man Cars of the* 65
Park Royal Coachworks 271
Pay-as-you-pass Car, Electrical Equipment* 12
Pennsylvania Electrification Programme .. 18
Personal, 29, 83, 137, 138, 201, 253, 255, 257, 328, 329
Petrol Omnibuses Running on Fuel Oil* .. 265
Pittsburg's New Street Car 137
Pneumatic Tyre in Heavy Transport .. 44
Power Station of the French Tramways Company, Shanghai* 235
Preston Corporation and Trolley Omnibuses 274
Protection for Tramcar Passengers 24
Publications Received .. 16, 27, 78, 95, 133, 137

R

Rail and Road Traffic Co-ordination .. 269
Rail Repairs, Rapid and Efficient* 134
Railplane System, The Bennie* 186
Railway Omnibus Policy in 1929 40
Railway Ultimatum to Agents 95
Reading Municipal Transport Guide .. 137
Reconditioned Cars at Glasgow 12
Record Order for Six-Wheelers* 154
Reduced Fares in Sheffield 80
Reducing Noise from Tramcars* 197
Regent Street to Cambridge* 269
Relief of Unemployment 137
Road Traffic Administration, Cost of .. 271
Road Traffic Bill 41, 78, 94, 270, 343
Appointments Under the 154
Power to Run Public Vehicles .. 43
Rejected Omnibus Clauses 43

Digitized by Google

PAGE

Road Vehicle Taxation Conference 153
Rome, A Traffic Revolution in 74
Underground Railways for 134

S

Safety Devices for Underground Railway* .. 25
Salesmanship Among London Tramwaymen* 73
Scottish Tramways and Transport Association 127, 203
Sentinel-Cammell Rail Cars 16
Shannon River Power Station 203
Sheffield, Reduced Fares in 80
Sheffield's Diesel-Engine "Karrier" Six-Wheel Omnibus* 150
Shooting and Photography from a Car* .. 214
Sinclair, Mr. G. F.* 255
Six-Wheel Diesel Engine Omnibus* 150
Six-Wheel Omnibuses :—
Coventry* 211
Derby* 153
Northampton* 41
Sheffield* 150
Sleeper Track Tramways in Birmingham* .. 119
South African Railway Officers at Thornycroft's Works* 215
Southern Railway Electrification Schemes .. 69
Spare Wheel Carrier, Crossley's* 267
Spring Seats, Lamplugh 210
Stafford, Mr. C. H.* 137
Stalybridge's Standard Omnibus* 211
Steam Rail Cars 183
Storage Battery, Third Rail and Pantagraph Locomotive* 19
Strachan's Works at Acton, Activities at .. 153
Subsidies for Motor Vehicles 213
Success of Glasgow's Pullman Cars 300
"Sunsaloon" Hood, The* 152

T

Telephone Control of Traffic 141
Testing Crossley Light Six-Wheelers* .. 212
Thomas, Mr. T. E., Appointed L.C.C. Tramway Manager 328
Thornycrofts for Stalybridge Board* .. 211
Thornycroft's Omnibus Chassis for Liverpool* 154
Ticket Boxes, Vulcanised Fibre* 100
Tilling-Stevens "Express" Chassis* .. 212
Traffic Accidents, Conference on 95
Traffic Co-ordination, Rail and Road .. 269
Traffic Development in Birmingham, Ordered* 119
Traffic Returns .. 32, 86, 142, 204, 260, 332
Traffic Revolution in Rome, A 74
Tramcar Hoisting Apparatus* 127
Tramcar: Present and Future, The* (J. L. Burton and H. H. Andrews) .. 316
Tramcar Progress in 1929 26
Tramcar Reconstruction in Mandalay* .. 121
Tramcar, Trolley and Motor Omnibus, Advantages and Limitations of the (R. H. Wilkinson) 94
Tramcars or Omnibuses (R. S. Pilcher) .. 122
Tramway and Light Railway Notes, 28, 82, 136, 200, 256, 328
Belfast, 256, 328; Birmingham, 136, 256; Bournemouth, 200; Bradford, 28, 82, 136;

PAGE

Tramway and Light Railway Notes (*contd.*)
Brighton, 200, 256, 328; Bristol, 256; Burnley, 200; Cardiff, 136; Coventry, 328; Darlington, 200; Dearne District, 28; Edinburgh, 28, 136, 256; Glasgow, 28, 82, 136, 200, 256; Hull, 256; Leeds, 28, 136, 256, 328; Liverpool, 29, 256, 328; London, 82, 136, 200, 256, 328; Lytham, 328; Manchester, 29, 83, 136, 200, 257; Newcastle-on-Tyne, 136, 200; Newport, 200; Norwich, 136; Reading, 257; Rotherham, 29, 257; Sheffield, 83, 328; Southport, 137; Sunderland, 29; Wallasey, 29; Wigan, 257.
Tramway and Traction Gears* (F. W. Rowe) 123
Tramway Authorities and London Traffic .. 258
Tramway Cars :—
Birmingham* 14
Leeds* 128
London County Council* 295, 318
London United* 319
Manchester* 300
Mandalay* 121
Milan* 9, 320
Paris Transport Company* 65
Toronto* 320
Tramway Circle for Liege* 238
Tramway Subway at Liverpool, Proposed .. 133
Tramways in Great Britain: Annual Returns for 1928-29 80
Tramways, Light Railways and Transport Association :—
Annual Congress at Hastings* .. 75, 252, 305
Annual General Meeting 306
Chairman's Address (E. H. Edwardes) .. 306
Change of Name 45, 75
Members of Council, New 306
Notes on Substituting a Trolleybus System for a Tramway* (W. Vincent Edwards) 307
Omnibus Demonstration* 337
Tramcar: Present and Future* (J. L. Burton and H. H. Andrews) .. 316
Transport Problems, Some (R. S. Pilcher) .. 154
Trolley Omnibus Powers for Derby 127
Trolley Omnibus System of Hastings and Bexhill* 240
Trolley Omnibuses at :—
Hastings* 240, 315
Maidstone* 248
Nottingham* 151, 191, 247
Trolley Omnibuses for Italy and Belgium, Guy* 245
Trolley Omnibuses for Torquay 39

U

Underground Electric Railways :—
Chelsea Power Station* 188
Exhibition of Safety Devices* 25
Last "Gate" Tube Train Passes* .. 28
Underground Parking Station, Hastings .. 41
Underground Railway Safety Devices* .. 25
Underground Railways for Rome 134
Unemployment, Relief of 137

Digitized by Google

PAGE

V

Vehicular Tunnel for New York 78
Ventilation for the Omnibus Driver* .. 152
Vulcan "Duke" Omnibus Tests* 209
Vulcan Omnibuses in Hong Kong* .. 268
Vulcanised Fibre Ticket Boxes* 100

PAGE

W

Weight of Double-Deck Omnibuses 213
Welding Plant with Rail Grinder* 134
Westinghouse Servo Brake* 146
Wind Screen Wipers 157
Windsor Express Service* 267
Wolverhampton and the Penny Fare .. 328
Wooden Wheels for Tramcars 258

OMNIBUS AND COACH SECTION.

PAGE

A

Aberdeen's Fleet of Albion 32-Seaters* .. 44
Advantages and Limitations of the Tramcar, Trolley and Motor Omnibus (R. H. Wilkinson) 94
Albion Omnibuses for Aberdeen Corporation* 44
Associated Equipment Company's Coaches for Continental Tours* 268
"English Electric" Trolley Omnibuses* 156, 339
Omnibuses for L. & N.E. Railway* .. 215
"Regal" Coach in Express Work* .. 267, 269
"Regal" Demonstration Car* 45
"Regent" Engine* 147
"Regent" Omnibuses* 97, 215, 271

B

Birmingham, Co-ordination in 96
Birmingham Traffic Control Committee .. 36
Birmingham's Double-Deck Omnibuses* .. 215
Brake, Westinghouse Servo* 146
Braking System for Motor Vehicles 45
Bristol Motor-Coach Station 271
Omnibuses at Merthyr Tydfil* 152
Tramways and the G.W. Railway .. 36
British Omnibuses for Sweden 271
Budget and Motor Vehicles, The 269

C

Cardiff and Inter-Town Services 214
Chester, Omnibus Services at 97
Coach, Omnibus and Tramcar Seating .. 210
Commercial Vehicle Production in 1929 .. 213
Conference on Traffic Accidents 95
Co-operation by Omnibus Workers 343
Co-ordination of Transport (Ashton Davies) 96
Coventry's Six-Wheel Omnibus* 211
Covered-Top Omnibuses for Manchester* .. 149
Crossley Double-Deckers at Manchester* .. 213
Light Six-Wheelers, Tests for* 212
Spare Wheel Carrier* 267
Vehicle for Shooting and Photography* 214

D

Derby Corporation's New Omnibus* .. 153
Double-Deck Omnibus at Glasgow* 151
Double-Deck Omnibuses, Weight of .. 213

E

Emergency Exits for Double-Deckers .. 213
Empire Advertising Club 270
"English Electric" Trolleybuses* .. 156, 339, 343
Exeter Corporation's Single-Deck Omnibuses* 156

F

Fuel Oil for Petrol Omnibuses* 265

PAGE

G

Gear Oil, A New 146
German Visitors Inspect Trolley Omnibuses 213
Glasgow Corporation's New 50-Seat Omnibus* 151
Glasgow Omnibus Test Case 266
Glasgow's New Omnibus Regulations .. 208
Godward Gas Generator* 265
Great Western Railway and Bristol Tramways 36

H

Hastings Underground Parking Station .. 41
Heavy Motor-Car Amendment Order .. 269

I

Institute of Transport 94, 96, 154
Institution of Automobile Engineers .. 44, 93
Irish Free State Omnibus Statistics .. 209

K

Karrier-Clough Trolley Omnibus 95
Karrier Six-Cylinder Engine* 210
Karrier Six-Wheel Omnibus* 150
Kirkstone Pass Test for Overseas Vulcan* .. 209

L

Lamplugh Spring Seats 210
Lancashire and Cheshire Transport Council .. 271
Leyland "Lion" Saloon Omnibus* 211
Local Authorities and New Omnibus Routes 271
London and North-Eastern Railway, A.E.C. Omnibuses for* 215
London General Omnibus Company :—
Employees' New Uniforms* 44
Hill Climbing Omnibuses* 147
Open Letter to Operating Staff .. 343
Quick-Loading Omnibus* 91
Ticket Litter 268
Windsor Express Services* 267
London Luxury Omnibus, New* 91
London Terminal Coach Station and Hotel* 37
London to Edinburgh for £1 94
London's Hill-Climbing Omnibuses* .. 147
Low-Height Omnibuses for Northampton* .. 41

M

Manchester Appeal to Motorists 150
Manchester Orders More Omnibuses .. 148
Manchester's Double-Deck, Top-Covered Omnibuses* 149, 213
Maudslay Low-Level, Single-Deck Omnibus* 156
Luxury Saloon* 267
"Magna" Six-Wheeler for Coventry* .. 211

Digitized by Google

PAGE

Ministry of Transport :—
Conference on Traffic Accidents .. 95
Heavy Motor-Car Amendment Order .. 269
Weight of Double-Deck Omnibuses .. 213
Motor Traffic Notes .. 48, 100, 158, 218, 273, 346
Motor Vehicle Braking System 45
Motoring Offences in Metropolitan Area .. 271
Mozley, Mr. H., Retirement of 271
Municipal Omnibuses and Petrol 268
Municipal Transport Hire 271

N

National Omnibus & Transport Company .. 267
Newcastle Corporation's "Regent" Omnibus* 97
"Northern General" Garage 274
Northern Ireland Traffic Bill Passed 36
Notes and Comments .. 35, 89, 145, 207, 263, 335
Anti-Skid Surface, An 264
Balloon Tyre and Its Taxation 35
Better Vision for Drivers 336
Day's Journey, Maximum Distance for a 263
Defective Vehicles 336
Demonstration Machines at Hastings .. 336
Diesel Engines for Omnibuses 145
Earnings of the Top-Covered Omnibus .. 145
Encouragement for the Motor Industry 36
Fitness of Drivers 263
Fuel Experiments in Progress 90
Garage and Service Equipment .. 89
Illumination of Omnibuses 36
Impending Revolution, The 207
Maximum Distance for a Day's Journey 263
Numbered and Reserved Seats .. 335
Omnibus and Coach Parade at Hastings 336
Omnibus Body Design 208
Omnibus Illumination 36
Omnibus *v.* Tramcar 264
Omnibuses for Overseas 335
Overseas Demand for Omnibuses .. 335
Protection for the London Driver .. 89
Railway Factor in Road Services .. 35
Road Traffic Bill 207
Road Traffic Requirements 207
Service and Garage Equipment .. 89
Top-Covered Omnibus Earnings .. 145
Tyre Wear, Vehicle Design and 208
Unsplinterable Glass 264
Vehicle Design and Tyre Wear .. 208
Vision for Drivers, Better 336
Weight Restrictions 145
Wind-Screens for Omnibus Drivers .. 89, 336
Nottingham's Trolley Omnibuses 151

O

Omnibus and Coach Services :—
Company 46, 98, 157, 216, 272, 344
Long-Distance, 47, 94, 99, 158, 217, 273, 345
Municipal 46, 98, 157, 216, 272, 344
Omnibus Demonstration at Tramway Congress* 337
Omnibus Purchase, Proposed Joint 210
Omnibus Regulations for Glasgow, New .. 208
Omnibus Services at Chester 97
Omnibuses Bill, The 90
Omnibuses for Newcastle, More 153

P

PAGE

Park Royal Coachworks 271
Petrol Omnibuses Running on Fuel Oil * .. 265
Pneumatic Tyre in Heavy Transport .. 44
Preston Corporation and Trolley Omnibuses 274

Q

Quick-Loading "General" Omnibus * .. 91

R

Rail and Road Traffic Co-ordination .. 269
Railway Omnibus Policy in 1929 40
Railway Ultimatum to Agents 95
Recent Orders, Some, 47, 99, 148, 154, 155, 217, 274, 343, 346
Record Order for Six-Wheelers * 154
Regent Street to Cambridge * 269
Road Traffic Administration, Cost of .. 271
Road Traffic Bill 41, 94, 270, 343
Appointments Under the 154
Power to Run Public Vehicles .. 43
Rejected Omnibus Clauses 43
Road Vehicle Taxation Conference 153

S

Seating for Coach, Omnibus and Tramcar .. 210
Sheffield's Diesel Engine, "Karrier" Six-Wheel Omnibus * 150
Shooting and Photography from a Car* .. 214
Six-Wheel Diesel Engine Omnibus* .. 150
Six-Wheel Omnibuses :—
Coventry* 211
Derby* 153
Northampton* 41
Sheffield Diesel Engine* 150
Some Transport Problems (R. S. Pilcher) .. 154
South African Railway Officers at Thornycroft's Works* 215
Spare-Wheel Carrier, Crossley's* 267
Stalybridge's Standard Omnibus* 211
Strachan's Works at Acton, Activities at .. 153
Subsidies for Motor Vehicles 213
"Sunsaloon" Hood, The* 152

T

Testing Crossley Light Six-Wheelers* .. 212
Thornycroft's for Stalybridge Board* .. 211
Thornycroft's Omnibus Chassis for Liverpool* 154
Ticket Boxes, Vulcanised Fibre* 100
Tilling-Stevens "Express" Chassis* .. 212
Traffic Accidents, Conference on 95
Tramways and Light Railways Association :—
Change of Name 45
Omnibus Demonstration at Hastings* .. 337
Transport Problems, Some (R. S. Pilcher) .. 154
Trolley Onmibuses at Nottingham 151
Trolley Omnibuses for Torquay 39

U

Underground Parking Station, Hastings .. 41

V

Ventilation for the Omnibus Driver* .. 152
Vulcan "Duke" Omnibus Tests* 209
Vulcan Omnibuses in Hong Kong* 268
Vulcanised Fibre Ticket Boxes* 100

W

Weight of Double-Deck Omnibuses 213
Westinghouse Servo Brake* 146
Wind-Screen Wipers 157
Windsor Express Service* 267

Digitized by Google

PERSONAL REFERENCES AND AUTHORS' INDEX.

	PAGE
Adam, W. W. ..	325
Aldworth, J.	151
Allen, G. H. L. ..	29
Andrews, H. H. 303, 305, 315, 316,	325
Ashley, Lieut.-Col. ..	270
Backer, M. A. de ..	129
Bacqueyrisse, M. ..	65
Baekeland, Dr. L. H. ..	24
Baker, A. C.	14
Barnard, J.	329
Baron, P.	139
Beasant, H. R. ..	312
Beaumont, Major E. G.	257
Bell, D. E.	312
Bennie, G.	186
Blackburn, A. A. ..	196
Blakiston, H. E. ..	139
Bolton, C. F.	138
Bond, W.	44
Bristow, F. G. ..	269
Brooke, Sir J. R. ..	201
Bruce, J. K.	253
Buist, D. Maxwell ..	138
Burton, J. L. 303, 305, 315, 316,	326
Cameron, Alex. ..	132
Campion, R. H. .. 313,	329
Cardwell, G.	258
Catford, E. O. ..	24
Cautley, Sir H. .. 192,	258
Challenger, Charles ..	29
Chamberlain, W. 22, 135,	249
Christie, J.	138
Clare, D. L.	79
Clarke, Cyril	20
Cleghorn, W. R. ..	335
Clough, N.	312
Cockburn, J. G. ..	139
Cox, E. C.	138
Cozens, C. W. F. ..	257
Daggett, A. .. 29, 138,	201
Davies, Ashton ..	96
Davies, Coun. F. M. R. 242,	326
Dickson, A.	83
Dobson, J. E. ..	83
Dollan, Coun. P. J. .. 300,	327
Dudgeon, H. M. ..	45
Easton, T. P. ..	82
Eaton, A.	83
Ebbisham, Lord ..	195
Edwardes, E. H. 305, 306, 314, 325, 326,	327
Edwards, W. V. 240, 303, 305, 307, 311, 314, 326,	327
Ellaway, Ald. A. G. ..	96
England, B.	313
England, H. 314,	325
Everitt, C. K. ..	138
Fearnley, A. R. .. 80,	150
Fell, A. L. C. ..	254
Fenelon, K. G. ..	78
Field, Ald. C. G. ..	30
Fitzpayne, F. A. ..	325
Fletcher, G. H. .. 23,	27
Forbes, W.	214
Forsyth, Coun. W. D.	325
Furness, C. 29,	30
Gait, E. F.	29
Galer, F. B. 255,	329
Garcke, E.	133
Garrett, F. A. ..	313
Gent, Albert	329
Goddard, W. H. ..	150
Godsmark, H. G. ..	329
Goodey, S. W. ..	270
Grant, W.	330
Griffith-Boscawen, Sir A.	43
Gunn, J. L.	27
Hardie, N. A. ..	139
Harvey, L. E. .. 196,	314
Hays, D.	201
Healey, A.	44
Higham, Ex-Ald. C. ..	29
Hoare, A. R. 305,	312
Hoggard, R.	141
Horton, J. W. ..	127
Howley, R. J. ..	96
Humphreys, Sir G. ..	192
Jackson, A. A. 83, 138,	201
Jackson, Clement ..	257
James, David ..	330
James, Desmond ..	324
Jarvis, Sir J. 267,	269
Jervis, Ing. Tomasso ..	9
Johnson, A. C. ..	29
Kereval, M.	65
Laing, K.	83
Lee, C. K.	17
Little, C. W. T. ..	83
Ludgate, H. C. W. ..	201
Lutyens, Sir E. ..	192
Macassey, Sir L. .. 79,	135
Mackinney, F. W. ..	253
Mackinnon, L. ..	327
McClure, Coun. J. D. .. 79,	249
McGibbon, W. ..	313
McLagan, D. C. ..	257
Margary, T. A. G. .. 83,	138
Marks, W. G. .. 151,	196
Marsh, W.	258
Matthews, C. W. ..	329
Maybury, Sir H. .. 95,	192
Mayne, Ald. R. 82, 153, 201,	255
Miller, R. W.	179
Minnis, W. F. ..	135
Moody, Dr. G. T. ..	305
Morland, W. Vane 90, 312,	324
Morrison, H. 76, 90, 95, 154 213, 250,	270
Mozley, H. 201,	271
Murphy, E. J. ..	75
Nall, Sir Joseph ..	305
Naylor, W. S. ..	29
Newton, A. E. ..	325
Nimmo, H.	329
Paine, J. H.	73
Palmer, F.	192
Pick, Frank	192
Pilcher, R. S. 122, 149,	154
Ponsonby, A.	95
Power, O. Cecil ..	96
Priestly, P.	27
Queeney, J. A. ..	265
Richards, J. F. ..	30
Robinson, Adrian ..	79
Robson, W. T. ..	313
Rowe, F. W.	123
Rowland, T. C. E. ..	45
Russell, Earl 43,	94
Russell-Davies, Coun. F. M. 305,	326
Rylance, Norman ..	329
Sharpe, H. B. .. 257,	329
Shave, G. J. .. 36, 91,	343
Silvers, C. Owen .. 83,	196
Sinclair, G. F. ..	255
Smalley, T.	196
Smith, R. F.	327
Snowden, Philip ..	269
Spencer, C. J. ..	95
Stafford, C. H. .. 137,	257
Stallan, H.	36
Stanley, Sir Arthur ..	305
Stevens, W. A. ..	313
Stewart, C. L. E. ..	336
Stone, J. G. B. ..	329
Sykes, T. P.	138
Tattam, C. R. .. 313,	325
Teasdale, T.	196
Thomas, J. H. .. 36,	137
Thomas, T. E. ..	328
Thorp, J. B. ..	192
Timpson, Sir J. ..	305
Timson, H. E. ..	89
Turckheim, A. de ..	305
Turney, Ald. A. ..	151
Walker, J. R. ..	329
Wallis, E. W. ..	37
Warrilow, W. E. ..	313
Watlington, V. ..	140
Webber, H. J. ..	84
Whitaker, F. S. ..	271
Wilkinson, R. H. 94, 195,	248
Wilson, T. Muir ..	208
Woodward, Robert ..	84

Digitized by Google

Engineering Library
625.05
T/P

THE
Tramway and Railway World
FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.
Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates—
FOR THE UNITED KINGDOM—Twenty-five shillings per annum.
FOR ALL PLACES ABROAD—Twenty-five shillings per annum.
Postage to Canada, 6s.; to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS.

LONDON, JANUARY 4, 1930.

VESTIBULE CARS.

The Ministry of Transport will have learnt all that there is to be known concerning British tramcars with semi-vestibule ends when that authority has digested the replies of the Tramways and Light Railways Association and the Municipal Tramways and Transport Association to its recent letter. In the latter document the Minister stated that the Transport and General Workers' Union had urged more extensive introduction of vestibule fronts in order to give greater protection and comfort to motormen. It was also observed that in designing vestibule fronts the Associations would no doubt pay attention to the prevention of draught and the provision of safety glass, screen openings and screen wipers. If the Minister takes the trouble to inspect car platforms of double-deck cars he will see that it is only possible to give shelter in front and on one side of the present platform, a method that will keep the driver dry and screen him from much of the wind but will not exclude draught. A little consideration will show the Minister that the as-near-as-possible perfect vestibule can be secured only by rearranging the lower deck, the platform and the staircase, either on the system adopted some years ago for the rear entrance and front exit cars at Newcastle or the design followed for the same system of operation in the three experimental cars constructed during the past year or two for the company tramways of the Metropolis. The vestibules or lobbies of the latter cars are entirely enclosed and the doors are mechanically operated, both in front and in rear, while the lights of the driver's cabin and the lobby are of safety glass. With the increased risk of collision that arises from the motorisation of more than three-quarters of the vehicles on the roads it is essential that nothing but non-splinterable glass should be near the motorman; and it is because of the possibility of providing such glass that the licensing authority in London has withdrawn its ban on vestibules and screens. As was remarked in a report prepared in 1923 by a Joint Committee of the two Tramways Associations, after consideration of replies to a questionnaire, the question of geography and the relative exposure to weather conditions are associated with this subject. Wearing a waterproof over his overcoat, provided with waterproof gloves and gauntlets, and with eyes protected of late years by goggles, the motorman in the South is apparently in no need of a vestibule front of ordinary glass. A preferable contrivance would appear to be the screen of safety glass with which the Metropolitan Electric Tramways Co. has been experimenting, as illustrated in the issue of this journal of August 15, 1929. As the screen is fitted with a motor-driven rotary clear-vision disc, running normally at about 2,000 r.p.m., there is no risk of the motorman's vision being obscured by either rain or mud, while the absence of extensive side lights would appear to eliminate one danger pointed out in the report of the Joint Committee. That danger is that unless special care is taken in the design glass panels in vestibules may cause the motorman's vision to be confused by the reflection of internal and external lights, especially during wet or foggy weather, thus increasing the liability to accidents.

NEW MOTOR VEHICLE BRAKING SYSTEM.

OPTIONAL HAND OR ELECTRICAL CONTROL.

A patent has recently been granted to Mr. H. M. Dudgeon and Mr. T. C. E. Rowland, of the Birmingham Corporation Tramways, for a new braking system which promises to be of great utility, more especially to the heavier road vehicles. It is not a new form of brake, but is a new means of applying the existing brakes, and it gives the driver the option of braking in the ordinary way by the foot or hand, or of operating them as entirely power-operated factors.

The power is electrical and the whole equipment very simple. Current taken from the lighting battery, or from a special generator coupled to the Cardan shaft, energises an electro-magnetic solenoid supported on the underframe of the vehicle, and the movement of the core is transmitted to the brake shoes. A graduated series of resistances in the circuit enables the brakes to be applied as gradually as may be desired—the rate of application depending, as in tramcar braking, on the movement of the controlling switch.

The application may be to the foot-operated brake only, or to the hand brake, or to both sets combined. When the hand brake is electrically operated, the brake lever, with its ratchet and pawl, is not used, so that the brake is released on the opening of the switch.

The controlling switch is placed on the steering wheel in the form of a light rim, within easy access of the fingers in any position of the wheel, and full braking force can be applied either gradually or quickly by the mere movement of one finger, and without removing either hand from the wheel. As the foot and hand levers are not interfered with, the brakes may be applied in the ordinary way at the option of the driver. As an alternative means of control, the resistances are cut out by the movement of the foot brake pedal with a simple contact switch operated on the steering wheel. When this switch is open the brakes are applied in the ordinary way, but when it is closed the foot brake immediately becomes a power-operated one, and may work in combination with the hand brake shoes.

Provision is made for very fine adjustment, and as the movement of the solenoid's core may be applied so as to cut out most of the ordinary brake pins and linkages, the risk of brake failure is correspondingly reduced. Current consumption is small, and the inventors state that the equipment can be fitted to any existing vehicle at very little cost.

BERLIN'S TRAFFIC METHODS.

In view of the approaching visit of a deputation of the Glasgow Tramways Committee to Berlin to examine methods there in use, "The Glasgow Herald" has obtained from its Berlin correspondent an interesting article on the traffic situation in that city. The Berlin system consists of a combination of tramway, omnibus and underground railway services with a share capital of 40 million marks which is entirely in the hands of the municipality. This arrangement has eliminated all competition, and the profits are employed in improvements and extensions in the services. As a result the Berliner enjoys exceedingly low fares. The tramways carry nearly four times as many passengers annually as the omnibuses or the underground railway.

Berlin, says the "Herald" correspondent, is not a particularly cheap city to live in, but fares by omnibus, tramway and underground or Stadtbahn, the equivalent of the District Railway, are cheap. For the sum of 20 pfennig, or roughly 2½d., one can ride a distance of 20 miles from one end of Berlin to another, and the ticket enables one to change from omnibus to tramway or underground railway, or vice versa, so long as the vehicles are running in the same direction, and if the change from one to the other is made within 1½ hours of the start of the journey.

Engineering Library
Digitized by Google

IMPROVING RAILWAY PROSPECTS.

Mr. R. H. Selbie, chairman of the Railway General Managers' Conference, in a New Year's message says that railway traffics generally have been better during the year, and the companies mainly responsible for the heavy business have achieved substantial increases in gross receipts. Passenger traffic still lags behind in spite of efforts made to encourage it by means of special and reduced fares and improved services.

There has not yet been time for the effect of the various agreements which have been entered into between the railway companies and the proprietors of the principal road services to be felt, but if the usual results follow the elimination of unreasonable competition the railway companies' passenger receipts should start once more on the up-grade.

There are signs of an awakening to the fact that, as the railways have ceased to hold any monopoly of transport work, they must, if they are to fulfil their proper functions, be freed from the hampering restrictions placed upon them when that monopoly existed.

RAILWAY ULTIMATUM TO AGENTS.

Agencies for the sale of railway tickets have received a notification from the railway companies that they will be prohibited from selling tickets for motor coach trips, except in the case of companies or owners approved by the railway groups. The prohibitions in full are as follow :—

No agent may issue tickets for purely road tours unless the road service is performed by an approved road transport firm.

Local sight-seeing tours around London, embracing Stoke Poges, Windsor, and Hampton Court, must be submitted to the railways for consideration.

Agents must not book organised tours to the Shakespeare country or any similar tour, as these are competitive with existing railway tours.

Day motor trips to race meetings from London and provincial towns are prohibited.

Casual picnic parties are only allowed when railway-owned or controlled road vehicles are not available.

The companies refused to accede to a proposal by the agents that the latter should be allowed to sell coach tickets when these were asked for, provided the agents did not advertise the services.

READING MUNICIPAL TRANSPORT GUIDE.

In a quarterly publication comprising 72 clearly printed pages and a map, the Tramways and Motor Department of Reading Corporation issue a guide to the municipal tramway and omnibus services, which has proved of great service to townspeople and visitors. No charge is made for it, and this handy guide has a large circulation in business establishments and private houses, with a consequent advantage to readers and to the receipts of the tramway and omnibus department. The map is particularly useful, as it shows clearly the tramway and omnibus routes, the latter traversing a more extensive area than the tramways. Supplementing the tramway services, the omnibuses run to outlying districts, and where necessary they also provide connection from one tramway route to another. Direct access is also given by tramcar and omnibuses to railway stations.

The guide contains full particulars of the parcel express service, which for many years has been a useful adjunct of the tramways department. As this service is operated in conjunction with that of the Thames Valley Traction Company a very wide area is served outside the town. Another useful feature of the guide is the timetable of omnibus services to and from the railway stations, together with a list of trains to and from Paddington. It would be to the public advantage if more transport undertakings imitated the enterprise which Mr. J. M. Calder, the General Manager and Engineer, has shown in compiling and arranging for the publication of this very useful booklet.

FINANCIAL.

Municipal Transport Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended December 14 give total receipts of £431,060, or £34,584 more than in the corresponding week of last year. The aggregate receipts for 37 weeks amounted to £15,397,662, an increase of £625,433 over the corresponding period of last year.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended January 1 amounted to £77,600, an increase of £4,132 compared with the corresponding week of last year. The route length was 166.29 miles, as compared with 165.78 a year ago. From April 1 (the commencement of the financial year) to January 1 (39 3-7 weeks) the total receipts were £3,305,057, an increase of £35,908

Glasgow General Omnibus, Ltd., report that the increased cost of petrol and a huge expenditure, due to the reconditioning of the chassis, engines and bodies of their vehicles, is the chief cause of a bad and unfavourable year. The accounts for year to September 30 last show a loss of £25,216, compared with debit balance of £6,089 for previous twelve months, and with profit of £7,572 for 1926-27. Profits from omnibus trading account amounted to £21,992, against which £38,000 was provided for depreciation of vehicles. Reference is made to negotiations now in progress with the railway companies with a view to their securing an interest in the business, and hope is expressed that a basis of agreement will be reached at an early date.

MISCELLANEOUS NEWS AND NOTES.

Tramways in Central Rome ceased to run on the night of December 31, and were replaced by motor omnibus services on New Year's Day.

Railway Wages.—A large number of railwaymen received an advance in wages in the New Year under the sliding scale provision of the National Wages Agreement.

A Birmingham Omnibus Extension.—Birmingham Tramways Committee has decided to substitute omnibuses for the Bolton-road tramway service, which is to be discontinued on January 31.

Cradley Heath Tramways.—Rowley Regis Urban Council has reached agreement with Birmingham and Midland Joint Tramway and Omnibus Committee for the abandonment of the tramway between Old Hill and Cradley Heath.

New Tramway Line.—By a new order of the Minister of Transport, authority is given, under the Light Railways Act, for the construction of a tramway line along Ferry-lane connecting the Metropolitan Electric Tramways with the Tottenham and Walthamstow Borough Tramways.

Leeds Watch Committee has granted licences to the Yorkshire Traction Co., Ltd., and the Sheffield Corporation for omnibuses to ply for hire in the city in connection with existing services between Leeds and Sheffield, now operated by the West Riding Automobile Co., Ltd., but to be run as a joint service.

Season Tickets for Glasgow Transport Users.—In view of the increased demand, chiefly on the part of residents in outlying districts, for season tickets for Glasgow Corporation tramway and omnibus services, the Transport Committee has asked the general manager, Mr. L. Mackinnon, to make a report.

Vacuum Cleaner not Personal Luggage.—The question was raised at the Manchester City Police Court on December 23 as to whether a package measuring 4 ft. by 3 ft. by 2 ft., containing a vacuum cleaner, was "personal luggage." The owner was fined 5s. for refusing to pay for the carriage of the parcel.

Omnibuses at Gosport.—Gosport and Fareham tramway service has been discontinued and the tramcars have been replaced by motor omnibuses. A number of tramcar drivers have been trained at the company's expense to drive motor omnibuses, and they have been gradually taken on as they became efficient.

Speedometers for Public Service Vehicles.—Leeds Watch Committee having expressed to the Ministry of Transport the view that the provision of speedometers on public service vehicles should be made obligatory, has been informed that the view of the Committee will receive the careful consideration of the Ministry.

New Glasgow-Greenock Omnibus Service.—The London, Midland and Scottish Railway, in conjunction with the Greenock Motor Services, began on December 28 a 20-minute new omnibus service between Glasgow, Greenock and Gourock. In Glasgow the stance is at St. Enock Station. The vehicles used have Albion chassis, with saloon bodies with seats for 32 passengers.

Municipal Tramways and Transport Association.—The next annual meeting of the Managers' Section will be held in Leicester on Thursday and Friday, May 29 and 30, 1930. The Council of the Association has accepted the invitation to visit the British Industries Fair, Birmingham, and the meeting of the Council in February will be held in Birmingham on Friday, February 21.

Mineworkers and Municipal Employees' Hours.—A request has been presented to Glasgow Corporation by the Executive of the National Union of Scottish Mineworkers for a 47-hour week for all municipal employees. At present a 48-hour week is recognised as the general practice, but the trade unions claim that the Corporation should adopt the same standard as the engineering and shipbuilding employers.

Another Death from Leeds Accident.—A second death from shock following severe burns sustained in the collision in Dewsbury-road, Leeds, between two tramcars and a motor-car, occurred on December 26. The same jury as was empanelled for the inquest on the first victim assembled for the coroner's inquiry and returned a verdict of "Accidental death." It is announced that all the other injured are progressing satisfactorily.

Northampton Tramways Committee proposes to substitute omnibuses for tramcars on the Kettering-road route, and probably a circular service will be run along Park-avenue north linking up Wellingborough and Kettering-roads. The Kettering-road track needs reconstruction, and the cost of this is estimated at about £30,000, apart from the remaking of the roads. A grant of 60 per cent. of the cost would be made by the Ministry towards the reconstruction of the road, the expense of which is estimated at about £29,000. The Tramways Committee has recommended the purchase of six new double-deck motor omnibuses at an estimated price of about £2,000 each.

Glasgow Tramways Pinkston Power Station.—The Central Electricity Board has, it is stated, written to Glasgow Corporation asking for particulars of the proposed expenditure and the nature of the operations in connection with Pinkston Power Station. It is understood that the Electricity Board are making inquiries into the whole scheme and that legal authorities are being consulted as to the Corporation's powers regarding it. Pinkston Power Station is owned by the Tramways Department, which is proposing to incur an expenditure of £218,000 for reconditioning the plant. The Central Electricity Board has been opposed to this expenditure on the ground that the Corporation ought to make arrangements with a view to the centralisation of the production and distribution of electric power through Dalmarnock Station, which is owned by Glasgow Electricity Department.

Digitized by Google

Engineering Library

More Omnibuses for Liverpool.—Liverpool Tramways Committee has recommended the City Council to make application to the Minister of Transport for sanction for the borowing of £72,000 for the provision of additional omnibuses. With regard to the suggested adoption of trolley omnibuses, the Committee stated that they have no Parliamentary powers to operate such vehicles, but are seeking powers in the new Bill.

Breaking of a Tramway Standard at Salford.—Traffic in Blackfriars-road, Salford, was delayed for fifteen minutes on December 24 as a result of a tramway standard's breaking at the base and falling across the road. A car was only a few yards away from the standard when it fell to the ground, carrying with it some telephone wires. As the car was passing the spot the trolley came off and caused a strain on the wires, which resulted in the standard being broken.

Wallasey Tramways.—A special committee of the Wallasey Corporation is shortly to investigate the position of the Wallasey tramways. There has been a large decrease in the receipts from the tramways and an increase in the omnibus receipts. The Committee will consider whether there should be a general revision of fares on the unprofitable routes or whether the tramways should be replaced by omnibuses. The trolley omnibus system will also receive consideration.

Lady Houston and the Hull Tramwaymen.—Lady Houston telegraphed, on December 29, to the honorary secretary of the Hull tramwaymen's defence fund requesting him to distribute the £1,000 for which she recently sent a cheque among the 113 men as a New Year gift. After special allocations to one or two volunteers who have recently met with accidents, each man received about £8 7s. 6d. Lady Houston has, it is stated, expressed her determination to fight the men's legal battle in the High Court.

Hull Tramway Volunteers.—There appears to be little probability of a compromise between the Hull Tramways Committee and the volunteers who are threatened with dismissal for working during the General Strike in 1926. The Socialist members of the Tramways Committee intend to carry out their decision. The volunteers say that they would prefer not to have to take legal action, but they do not intend to withdraw their application to the High Court unless the Committee withdraw their resolution to dismiss them.

British Industries Fair.—Catalogues of the British Industries Fair have already been issued seven weeks before the Fair opens to 10,000 business men in Europe, North America, South Africa and the eastern coast of South America. The catalogue contains descriptions of the exhibits of 1,800 British manufacturers with a complete classification of trades and indices prepared in nine languages for the guidance of buyers. The Fair will take place at Olympia, London, and at Castle Bromwich, Birmingham, from February 17 to 28.

Morecambe Omnibuses.—Morecambe Corporation has approved the layout plan for the Central Omnibus Station on the Paulton Hall site, and plans are now being prepared for the requisite buildings. The Tramways Committee has fixed charges of 7s. 6d. and 12s. 6d. per hour respectively for inter-departmental hire of 20- and 32-seat motor omnibuses. The Committee has asked the manager to prepare tabulated statistics showing the prospective life of each motor omnibus, the annual loan charges and the consumption of oil and petrol.

Dundee Transport Services.—The Special Committee of Dundee Town Council, which is dealing with the question of the inauguration of a joint omnibus service to Broughty Ferry by the Corporation and the Dundee, Broughty Ferry & District Tramways Co., Ltd., has decided that if the company did not intimate acceptance of the latest proposals put forward by the Corporation by December 31, the whole of the facts and circumstances would be placed before the Ministry of Transport. Parliamentary powers for the running of the service were recently obtained by both bodies.

Wimbledon-Sutton Electric Railway.—The Wimbledon-Sutton electric extension of the Southern Railway will be opened on Sunday. The line, which is about 5¼ miles in length, has cost about £1,000,000 and includes twenty-four new bridges and six new stations at all of which passimeter booking offices will be in use. Trains will run every twenty minutes during rush hours and every 30 minutes at other times. One of the stations is at St. Helier, where the L.C.C. have a town which will comprise 10,000 houses. The journey from Sutton to Holborn via Wimbledon will take 45 minutes.

Glasgow Tramway Manager's Message to the Staff.—Mr. Lachlan Mackinnon, general manager of the Glasgow Corporation Transport Department, issued a Christmas message to the staff. Observing that the interim report of the Special Committee on Education for Salesmanship has just been issued, Mr. Mackinnon makes the comment that of the nine qualifications suggested as being necessary for the perfect salesman, five could aptly be applied to the transport employee. These five are, he says: "Good character, attractive personality, capacity for making friends, knowledge of human nature and the confidence of his firm."

"Free Rides For All."—Coun. H. Milner, speaking at a meeting of the Leeds City Council on January 2, in a discussion on the suggestion of the Tramways Committee that passes should be issued to all members of the Corporation entitling them to ride free in the municipal tramcars and omnibuses, supported the proposal, and said he looked forward to the day when riding free in tramcars would be a concession enjoyed by all. He foresaw the day, he said, when tramcars would be run on the general road fund. Sir Charles Wilson told the Council that the scheme would bring ridicule on the Socialist Party. An amendment that the Committee's proposal should be referred back was defeated.

Unique Presentation to Derby Tramwaymen.—Fourteen retiring Derby tramwaymen were honoured at the Tramwaymen's Club on Christmas Eve, when they were each presented with a £5 note to mark the "appreciation and regard" of their fellow employees. In making the presentation, Mr. P. W. Bancroft, the tramways manager, described it as a unique occasion and one that was most likely to happen again. Two of the recipients, R. Evans and W. Hall, had been in the tramway service since 1888 and 1891, respectively. The combined service of the fourteen men totals 284 years.

London's Railway Figures.—Figures relating to railway services show that in Greater London alone last year the railways carried 929,521,900. The number of passengers using main line terminal stations in London each day, together with the Underground railway, amount to a total of nearly 3,000,000. There are 580 passenger stations within a ten-mile radius of Charing Cross. These are divided up as follows: G.W.R., 22; L.N.E.R., 98; L.M.S., 75; S.R., 200; Metropolitan, 60; Underground, 125. Twenty-five years ago the Metropolitan Railway substituted electric traction for steam locomotion. To-day about 1,000,000 train journeys are made annually; upwards of 1,500 trains are handled daily at Baker-street alone.

Omnibus Competition at Bradford.—A report published by Mr. R. H. Wilkinson, general manager of Bradford Corporation Tramways, on the effects of omnibus competition on the tramway receipts, states that the returns are not satisfactory, and unless some attempt is made to protect local transport from severe omnibus competition, it will continue to be an extremely difficult matter to secure sufficient revenue to meet expenses. The tramways revenue from April 1 last to the end of October has decreased by £16,657, in comparison with a similar period in the year 1926, before the omnibuses commenced running into the city. Mr. Wilkinson argues that a large number of omnibuses are able to operate successfully only because of the income obtained in the Bradford area, and states that so long as they are allowed to continue the department will continue to lose an unreasonable and unnecessary amount of traffic.

PERSONAL.

Mr. William Simons, general manager of the Cardiff and Dowlais works of Guest & Nettlefolds, Ltd., has been elected a director of the company.

Mr. A. C. Johnson has been appointed Borough Electrical Engineer of Southend-on-Sea as from October 1, at a salary of £1,000 per annum for the two years ending September 30, 1931, thence increasing by two annual increments of £100 to a maximum of £1,200 per annum.

Mr. G. H. Loftus Allen, advertising and publicity officer of the London, Midland & Scottish Railway, has been appointed chairman of the British Railways Advertising and Publicity Relations Committee for the year 1930.

Mr. Arthur B. Cane, secretary of the Railway Companies' Association, retired on December 31, and Mr. G. Cole Deacon, assistant solicitor of the London, Midland & Scottish Railway, has been appointed to succeed him.

Mr. A. Dagget, traffic superintendent of the Leeds Corporation Tramways, is shortly to retire. At a recent meeting, the Committee expressed their appreciation of his long and valuable service, and the hope that he would enjoy a happy retirement.

Mr. Charles Furness, general manager of the Blackpool Corporation Tramways, has been appointed as the representative of the Municipal Tramways and Transport Association on the Technical Committee on Electric Cables of the British Engineering Standards Association.

Mr. W. S. Naylor, who has been appointed chairman of the Board of the Chloride Electrical Storage Co., Ltd., in succession to the late Mr. William Bannister, was appointed assistant manager of the company in 1902, and four years later became general manager. In 1921 Mr. Naylor joined the board of directors, and for 27 years he has been in the service of the company.

Mr. C. Dandridge, advertising manager of the London & North-Eastern Railway Company, will speak on "Selling Transportation" at a luncheon meeting of the Engineering Section of the Incorporated Society of British Advertisers, at the Hotel Cecil, on Friday, January 10. Mr. J. Taffs, chairman of the section, will preside. Mr. Dandridge is anxious to hear the views of business men on this subject, and it is anticipated that there will be an interesting discussion.

Alderman C. G. Field, chairman of the Reading Corporation Tramways and Motors Committee, who was recently re-elected an Alderman, is the senior chairman of municipal tramways committees. He was appointed chairman of the Reading Committee in November, 1906, and has continued to hold the position ever since. He was Mayor in 1893-4 and 1912-13, and the following year. For many years he has been a conservator of the River Thames and is now vice-chairman of the Thames Conservancy.

The death is announced of **Lieut.-Col. Montagu Cradock,** a director of the Metropolitan-Vickers Electrical Company. He was 70 years of age.

Mr. Thomas Quinn, whose death occurred a few days before Christmas, had been identified with Dublin tramways for 44 years. At the time of his decease he occupied the position of chief storekeeper.

Digitized by Google

CONTRACTS.

Rotherham Corporation has recently placed orders for four new petrol omnibuses at £1,140 each.

The British Thomson-Houston Co., Ltd., has been awarded a twelve months' contract by the Great Northern Railway Co. (Ireland), for the supply of Mazda gasfilled electric lamps.

Southend-on-Sea Town Council has accepted the following tenders:—Two 59-seat, low-loading trolley omnibuses (£4,760), English Electric Co., Ltd.; four sets of transverse seats for tramcars (£669), G. D. Peters & Co., Ltd.; tower wagon (£440), Tilling-Stevens Motors, Ltd.

The Great Western Railway recently placed a further contract with John I. Thornycroft & Co., Ltd., for 23 4-ton and 20 30-cwt. freight chassis. This increases the orders received by Messrs. Thornycroft during the past year from the Great Western Railway to a total of 274 chassis. These comprise a wide range of 30-cwt. to 10-ton freight and several types of passenger chassis.

Ransomes, Sims & Jefferies, Ltd., of Ipswich, mention among other recent orders one for sixty double-deck, top-covered omnibus bodies for the East Surrey Traction Co., Ltd.; nine single-deck bodies from the British Electrical Federation; and a contract for Trojan van bodies for the Air Ministry. Messrs. Ransomes are also supplying five complete electric trolley omnibuses for Liége, Belgium, and have received a repeat order from Bloemfontein, where their electric trolley omnibuses have been running very successfully during the last few years.

Karrier Motors, Ltd., has recently delivered to Halifax Corporation two "Chaser" 32-seat, forward drive type omnibuses with rear entrance. These vehicles are equipped with a four-cylinder power unit, developing 66 h.p., and have Dunlop 36-in. by 6-in. pneumatic tyres. The omnibuses are lighted by a 12-volt constant voltage lighting set. The body work by Hall, Lewis & Co., Ltd., of Park Royal, has been splendidly finished in maroon and gold, and the seats are upholstered in moquette to tone with the omnibus. The emergency door is placed forward on the off-side, and the destination indicator box is built into the front rail canopy.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

Name.	Week ended	Latest Return. 1928-29.	1929-30.	+ or —	Aggregate. Wks.	1929-30.	+ or —
Aberdare U.D.C.	Dec. 31	585	763	+ 178	39½	23,518	+ 2,229
„ Motor Buses	„ 31	307	390	+ 83	39½	10,072	+ 1,534
„ Total	„ 31	892	1,153	+ 261	39½	33,590	+ 3,763
Aberdeen Corp.	„ 25	4,288	4,670	+ 382	30½	153,201	+ 12,858
Ashton-u-Lyne Corp.	„ 21	887	924	+ 37	38	34,927	+ 1,134
„ Motor Buses	„ 21	509	466	— 43	38	18,482	+ 2,659
„ Trolley Buses	„ 21	285	285	Nil	38	10,713	— 701
„ Total	„ 21	1,681	1,675	— 6	38	64,122	+ 3,092
Ayr Corporation	„ 28	470	473	+ 3	32	20,617	+ 1,194
Barrow Corporation	Nov. 9	511	521	+ 10	32	19,717	— 2,995
„ Motor Buses	„ 9	269	371	+ 102	32	12,686	+ 6,163
„ Total	„ 9	780	892	+ 112	32	32,403	+ 3,168
Belfast City	Dec. 27	11,034	12,302	+ 1,268	38½	434,512	+ 76,742
„ Motor Buses	„ 27	1,065	1,299	+ 234	38½	42,057	+ 31,573
„ Total	„ 27	12,099	13,601	+ 1,502	38½	476,600	+ 108,315
Birkenhead Corp.	„ 29	1,704	1,558	— 146	39	65,084	— 9,494
„ Motor Buses	„ 29	2,917	3,424	+ 507	39	140,858	+ 27,751
„ Total	„ 29	4,621	4,982	+ 361	39	205,942	+ 18,257
Birmingham Corp.	„ 24	28,735	30,609	+ 1,874	38	1,052,604	+ 16,592
„ Motor Buses	„ 24	11,384	15,201	+ 3,817	38	510,819	+ 88,510
„ Trolley Buses	„ 24	611	695	+ 84	38	21,669	+ 673
„ Total	„ 24	40,730	46,505	+ 5,775	38	1,585,092	+ 105,775
Blackburn Corp.	„ 25	2,222	2,043	— 179	38½	75,424	— 4,330
„ Motor Buses	„ 25	Nil	386	+ 386	7½	2,748	+ 2,748
„ Total	„ 25	2,222	2,429	+ 207	...	78,172	— 1,582
Bradford Corporation	„ 21	14,002	15,073	+ 1,071	38	565,592	+ 29,354
Brighton Corporation	„ 29	2,062	2,333	+ 271	39	104,179	+ 1,671
Burnley Corporation	„ 28	3,703	3,820	+ 117	...	...	...
„ Motor Buses	„ 28	744	826	+ 82	...	...	...
„ Total	„ 28	4,447	4,646	+ 199	...	...	...
Burton-on-Trent Cpn.	„ 22	414	147	— 267	38	13,732	— 319
„ Motor Buses	„ 22	469	731	+ 262	38	17,900	+ 2,054
„ Total	„ 22	883	878	— 5	38	31,632	+ 1,735
Bury Corporation	„ 29	2,384	2,001	— 383	39	78,968	— 8,092
„ Motor Buses	„ 29	356	963	+ 607	39	22,170	+ 7,294
„ Total	„ 29	2,740	2,964	+ 224	39	101,138	— 798
Cardiff Corporation	„ 14	7,063	7,944	+ 881	36½	286,426	+ 2,626
Chatham and District	„ 26	1,094	1,091	— 3	51	58,986	— 6,538
Chesterfield Corp.	„ 30	1,825	2,272	+ 447	39	77,494	+ 2,811
Colchester Corp.	„ 25	521	633	+ 112	39	21,668	+ 3,847
Colne Corporation	„ 25	839	825	— 14	39	28,124	+ 100
Coventry Corporation	„ 29	2,100	2,164	+ 64	39	83,754	+ 1,672
„ Motor Buses	„ 29	1,463	1,837	+ 374	39	64,070	+ 17,627
„ Total	„ 29	3,563	4,001	+ 438	39	147,824	+ 19,299
Darlington Corp.	„ 28	1,136	1,227	+ 91	38½	38,888	+ 878
Derby Corporation	„ 28	3,069	3,435	+ 366	39	127,770	+ 9,065
Dover Corporation	„ 28	334	396	+ 62	39	16,277	+ 290
Dundee Corporation	„ 24	3,585	3,748	+ 163	31½	110,724	+ 4,058
East Ham Corp.	„ 28	2,207	2,317	+ 110	38½	90,179	+ 3,826
Edinburgh Corp.	„ 21	13,738	14,368	+ 630	31½	459,522	+ 15,319
„ Motor Buses	„ 21	3,128	3,542	+ 414	31½	110,053	+ 12,249
„ Total	„ 21	16,866	17,910	+ 1,044	31½	569,575	+ 27,568
Exeter Corporation	Jan. 1	823	861	+ 38	40	34,547	+ 407
Glasgow Corporation	Dec. 14	13,374	46,088	+ 2,714	28	1,246,038	— 6,309
„ Motor Buses	„ 14	4,408	7,007	+ 2,599	28	163,765	+ 95,295
„ Total	„ 14	47,782	53,095	+ 5,313	28	1,409,803	+ 88,986
Gloucester Corp.	„ 25	606	760	+ 154	38½	22,975	+ 1,249
Grimsby Corporation	„ 28	1,812	1,575	— 263	39	56,987	+ 4,742
Halifax Corporation	„ 10	2,981	3,199	+ 218	36½	122,173	— 269
„ Motor Buses	„ 10	1,121	1,824	+ 703	36½	46,962	+ 8,104
„ Total	„ 10	4,102	5,023	+ 921	36½	169,135	+ 8,373
Huddersfield Corp.	„ 28	6,170	6,474	+ 304	39	250,990	+ 2,108
Hull Corporation	„ 28	6,015	6,329	+ 314	39	236,747	+ 1,308
„ Motor Buses	„ 28	1,509	1,785	+ 276	39	54,953	+ 7,112
„ Total	„ 28	7,524	8,114	+ 590	39	291,700	+ 8,420
Ilford Corporation	„ 28	1,424	1,520	+ 96	38½	58,690	+ 868
Ipswich Corp. Trol.Bus	„ 30	1,207	1,350	+ 143	40	50,622	+ 3,277
Isle of Thanet	„ 25	451	383	— 68	51½	45,360	— 2,086
Kilmarnock Corp.	„ 28	485	540	+ 55	32½	15,547	+ 914
Lancashire Un.	„ 22	2,086	2,248	+ 162	50½	115,062	— 6,628
„ Motor Buses	„ 22	3,825	4,574	+ 749	50½	223,049	+ 35,890
Leeds Corporation	„ 28	18,707	19,514	+ 807	38½	766,294	+ 20,927
Leicester Corp.	„ 28	7,430	8,644	+ 1,214	39	330,702	+ 15,719
Lincoln Corp.	„ 15	857	896	+ 39	37	34,374	+ 1,591
Liverpool Corp.	„ 28	29,125	30,635	+ 1,510	38½	1,178,168	+ 14,751
London County Coun.	Jan. 1	81,732	77,600	+ 4,132	39½	3,305,057	— 35,908
Luton Corporation	Dec. 18	351	397	+ 46	37½	15,458	+ 773
Maidstone Corp.	Dec. 26	212	143	— 69	38½	7,669	— 2,780
„ Motor Buses	„ 26	245	375	+ 130	38½	12,236	+ 3,509
„ Trolley Buses	„ 26	309	317	+ 8	38½	11,809	+ 1,558
„ Total	„ 26	766	835	+ 69	38½	31,714	+ 2,287
Manchester Corp.	„ 28	31,608	33,000	+ 1,992	39	1,369,472	+ 4,853
„ Motor Buses	„ 28	4,553	4,800	+ 47	39	193,294	+ 28,826
„ Total	„ 28	36,361	38,400	+ 2,039	39	1,562,766	+ 33,679
Middlesbrough Corp.	„ 17	1,120	1,139	+ 19	37½	42,454	— 534
„ Motor Buses	„ 17	455	563	+ 108	37½	19,372	+ 2,709
„ Total	„ 17	1,575	1,702	+ 127	37½	61,826	+ 2,175
Newcastle-on-Ty. Corp	„ 28	9,337	9,714	+ 377	39	389,674	+ 18,468
„ Motor Buses	„ 28	1,911	2,176	+ 265	39	79,132	+ 6,463
„ Total	„ 28	11,248	11,890	+ 642	39	468,806	+ 25,931
Newport Corporation	„ 21	725	807	+ 82	38	29,204	+ 1,677
„ Motor Buses	„ 21	1,818	1,782	— 36	38	64,210	— 270
„ Total	„ 21	2,543	2,589	+ 46	38	93,414	+ 1,407
Northampton Corp.	„ 27	1,651	1,290	— 361	38½	43,443	— 13,546
„ Motor Buses	„ 27	298	730	+ 432	38½	26,109	+ 14,070
„ Total	„ 27	1,949	2,020	+ 71	38½	69,552	+ 524
Nottingham Corp.	„ 26	6,283	6,228	— 55	38½	254,434	— 10,592
„ Motor Buses	„ 26	1,950	2,665	+ 715	38½	94,792	+ 21,113
„ Trolley Buses	„ 26	514	571	+ 57	38½	23,110	+ 1,324
„ Total	„ 26	8,747	9,464	+ 717	38½	372,336	+ 11,845
Oldham Corporation	„ 28	3,910	4,019	+ 109	40	143,484	— 16,215
„ Motor Buses	„ 28	1,968	2,296	+ 328	40	80,499	+ 25,455
„ Total	„ 28	5,878	6,315	+ 437	40	223,983	+ 9,240
Plymouth Corp.	„ 28	3,202	3,331	+ 129	38½	148,035	— 3,895
„ Motor Buses	„ 28	1,711	2,159	+ 448	38½	78,213	+ 11,206
„ Total	„ 28	4,913	5,490	+ 577	38½	226,248	+ 7,311
Portsmouth Corp.	„ 28	5,043	5,303	+ 260	39	257,027	+ 10,595
Preston Corporation	„ 25	1,894	1,843	— 51	38½	66,874	+ 697
„ Motor Buses	„ 25	516	564	+ 48	38½	19,247	+ 2,319
„ Total	„ 25	2,410	2,407	— 3	38½	86,121	+ 3,016
Rawtenstall Corp.	„ 29	965	993	+ 28	39	33,262	— 1,948
„ Motor Buses	„ 29	523	608	+ 85	39	20,403	+ 2,738
„ Total	„ 29	1,488	1,601	+ 113	39	53,665	+ 790
Reading Corporation	„ 26	1,729	1,769	+ 40	39	59,641	— 64
„ Motor Buses	„ 26	1,048	1,125	+ 77	39	36,067	+ 1,814
„ Total	„ 26	2,777	2,894	+ 117	39	95,708	+ 1,750
Rochdale Corp.	„ 28	3,202	3,080	— 262	...	113,150	— 11,864
„ Motor Buses	„ 28	1,489	1,934	+ 445	...	61,839	+ 8,952
„ Total	„ 28	4,781	4,964	+ 183	...	174,989	— 3,912
Rotherham Corp.	„ 30	2,644	3,351	+ 707	40	109,972	+ 8,455
Salford Corporation	„ 29	10,169	11,380	+ 1,211	39	438,566	+ 26,183
Sheffield Corp.	„ 28	19,443	20,544	+ 1,101	39	820,692	+ 23,618
Southampton Corp.	„ 25	3,290	3,742	+ 452	39	133,599	+ 6,560
„ Motor Buses	„ 25	736	1,022	+ 286	39	31,444	+ 8,319
„ Total	„ 25	4,026	4,764	+ 738	39	165,043	+ 14,879
Southend-on-Sea Corp.	Jan. 1	1,825	2,023	+ 198	38½	98,446	— 461
Southport Corp.	Dec. 28	1,555	1,585	+ 30	38½	67,346	— 338
St. Helens Corp.	„ 24	2,287	2,459	+ 172	38½	78,615	+ 4,862
Sunderland Corp.	„ 29	2,383	2,729	+ 346	39	95,705	+ 3,215
Swindon Corp.	„ 18	585	909	+ 324	37½	30,440	+ 8,237
Wallasey Corp.	„ 28	1,778	1,113	— 665	38½	51,727	— 33,494
„ Motor Buses	„ 28	833	1,867	+ 1,034	38½	82,514	+ 48,898
„ Total	„ 28	2,611	2,980	+ 369	38½	134,241	+ 15,404
Walsall Corporation	„ 22	3,371	3,703	+ 332	38	130,951	+ 10,878
Walthamstow Corp.	„ 28	2,136	2,352	+ 216	39	95,586	+ 6,382
Warrington Corp.	„ 26	1,000	1,053	+ 53	39	34,841	— 1,163
„ Motor Buses	„ 26	494	557	+ 63	39	17,842	+ 3,011
„ Total	„ 26	1,494	1,610	+ 116	39	52,683	+ 1,848
West Ham. Corp.	„ 26	5,583	6,398	+ 815	38½	235,992	+ 19,712
Wolverhampton Corp.	„ 22	Nil	Nil	Nil	38	Nil	— 15,958
„ Motor Buses	„ 22	3,081	3,026	— 55	38	106,725	+ 16,133
„ Trolley Buses	„ 22	3,472	3,629	+ 157	38	128,013	+ 22,421
„ Total	„ 22	6,553	6,655	+ 102	38	234,738	+ 22,896
York Corporation	„ 25	1,093	1,109	+ 46	39	41,075	— 163
„ Motor Buses	„ 25	392	572	+ 180	39	15,977	+ 3,458
„ Trolley Buses	„ 25	57	35	— 22	39	2,194	— 443
„ Total	„ 25	1,512	1,716	+ 204	39	59,246	+ 2,852

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

Name.	Week or M'th.	Latest Return. 1928.	1929.	Aggregate. Wks. or *Ms.*	1929.	In. or Dec.
Anglo-Argentine	Dec. 23	£92,243	£90,247	49 w	£4,421,575	— £111,963
Brazilian Traction $	Nov.	3,698,213	4,145,850	11 *m*	45,366,904	+ 6,265,634
British Columbia $	Oct.	1,115,394	1,230,278	4 *m*	4,725,029	+ 294,876
Buenos Aires Lacroze	Dec. 29	14,052	12,772	25 w	295,654	— 26,963
Burma E. Sup. Co. Rs.	Nov.	66,305	62,191	4 *m*	249,852	— 25,126
Calcutta ... Rs.	Dec. 28	161,758	127,436	49½ w	6,536,289	— 95,196
Cape Town	Oct.	30,021	27,501	...	...	...
Carthagena & Herrerias	Dec.	676	1,314	12 *m*	13,367	+ 277
Durban	Nov.	22,498	23,214	4 *m*	95,524	+ 2,777
East India	Nov.	3,808	3,905	4 *m*	16,261	+ 683
Kalgoorlie	Sept.	2,056	1,980	9 *m*	15,470	— 296
La Plata	Oct.	9,781	14,104	10 *m*	95,896	+ 2,440
Madras (2 weeks) Rs.	Dec. 31	46,317	50,043	50 w	1,054,503	+ 5,974
Para	Nov.	14,810	15,542	12 *m*	181,955	+ 2,809
Port Elizabeth ...	Oct.	7,404	7,593	...	...	...
Rangoon ... Rs.	Nov.	110,770	137,703	11 *m*	1,348,286	— 16,288
Shanghai ... $	Nov.	327,363	380,247	11 *m*	3,727,907	+ 347,132
Singapore ... ...$	Nov.	107,000	126,000	2 *m*	259,000	+ 39,000
Winnipeg ... ...$	Oct.	527,790	545,308	10 *m*	5,396,484	+ 349,071

RAILWAY RECEIPTS.

52nd Week ended Dec. 29th.	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week	Inc. or Dec. to Date.
G.W.R.	274,000	+ 54,000	185,000	+ 29,000	459,000	+ 83,000	+ 635,000
L.M.S.R.	552,000	+ 81,000	478,000	— 14,000	1,030,000	+ 67,000	— 616,000
L.N.E.R.	382,000	+ 44,000	489,000	+ 40,000	871,000	+ 84,000	+ 1,355,000
S.R.	343,000	+ 62,000	63,000	+ 1,000	406,000	+ 63,000	— 84,000
Totals	1,551,000	+ 241,000	1,215,000	+ 56,000	2,766,000	+ 297,000	+ 1,290,000

ELECTRIC RAILWAYS.

Name.	Week Ended.	Latest Return. 1928.	1929.	+ or —	Aggregate. 1929.	+ or —
London Underground Common Fund Cos.	Dec. 28	246,200	269,700	+ 23,500	14,941,200	+ 144,800
Lond. & Sub. Group	„ 28	36,800	41,300	+ 4,500	2,199,600	+ 38,500
Metropolitan Railway	„ 28	33,900	36,600	+ 2,700	1,895,500	+ 36,000
Liverpool Overhead	„ 29	1,259	1,361	+ 102	87,415	— 3,000
Mersey Railway	„ 28	4,144	4,426	+ 282	232,407	+ 5,645

Digitized by Google

THE
Tramway and Railway World
FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.
Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates—
FOR THE UNITED KINGDOM—Twenty-five shillings per annum.
FOR ALL PLACES ABROAD—Twenty-five shillings per annum. Postage to Canada, 6s.; to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS.

LONDON, JANUARY 11, 1930.

ECONOMY OF THE LIGHT-WEIGHT CAR.

Birmingham Tramways Department is on safe ground in building a light-weight car in order to secure greater economy of operation. American experience in that direction has been with the one-man car and also with the long and large capacity single-deck car that is common in that country. Although the light-weight car has been the subject of discussion at annual conferences in this country, experiments have not been numerous. For that reason, additional interest is attached to the Birmingham experimental car, and to the two experimental cars constructed this year for the company tramways of London. The Birmingham partial vestibule car is the outcome of the post-war improvement of rolling stock. Hitherto, in designs including the substitution of motors of greater capacity giving increased speeds, no particular regard has been paid to weight-saving. It was realised that the higher speed of these more powerful cars would result in increased costs for power and maintenance, but the management hoped that reduced platform expenses would cover these higher charges. In actual practice, this hope was not confirmed. Speeds have materially increased, but not to the extent anticipated, a result that was due primarily to traffic congestion in certain districts. Hence power and rolling stock maintenance costs have risen out of proportion to the reduction of platform expenses. In an endeavour to counteract that increase Birmingham has produced its light-weight car, which shows the substantial reduction of 3 tons, 3 cwts. 1 qr. in weight, while providing the greater speed, the comfortable riding qualities, and the elegant interiors now demanded. In service the car is most cordially welcomed, and the results of its working have been highly satisfactory. Acceleration and deceleration are slightly better than with a standard car, while current consumption is much improved. The question to be determined now is the effect upon maintenance costs and what life the car is likely to have as against the 25 years of other cars. Upon the first point American experience provides an answer in that the lighter car parts result in reduction of wear and tear, and a lower outlay for lubrication. Another not unlooked for result is that the cost of track maintenance has fallen. Those gains in the aggregate should afford hope that there will be no great reduction in the life of the car. It has a steel underframe, and aluminium and aluminium alloy are used for the body, except for the floors of the two saloons, and the new materials have the same strength as steel at approximately one-third the weight. Aluminium and its alloys have figured in the American light-weight cars, and have been used in aircraft construction and for omnibus bodies for years by the builders of the Birmingham body. Similar materials figure in the two new all-metal 64 and 62-seat cars now running on the Metropolitan Electric Tramways, and although these have longer and totally enclosed bodies, and many more attractions than a standard car, their weights are practically the same as the weight of the latter.

GLASGOW AND THE RAILWAYS.

FAILURE OF THE NEGOTIATIONS ON ROAD PASSENGER SERVICES.

In a report to Glasgow Corporation on the negotiations between the L.M.S. and L.N.E.R. Companies and representatives of the Tramways Committee with reference to a proposed scheme of co-ordination of omnibus services, Mr. D. Stenhouse, the town clerk, states that the companies' memorandum of April 17 was deemed unsatisfactory by the committee as the Corporation's tramway interests would be seriously prejudiced thereby. The Corporation submitted counter proposals on July 2, but the railway representatives considered them to be unsatisfactory. It was agreed to meet again on September 17, and that in the meantime the officials might consider the position, particularly as regards tramway routes outside the city boundary.

A meeting of officials took place on September 5, but prior to that meeting the Corporation had arrived at a decision which did not admit of any useful discussion, viz., to seek from Parliament a monopoly of passenger traffic in the city, and on the tramway routes outside the city. Further proposals were, however, submitted by both sides, and representatives of the Tramways Committee visited Sheffield and Huddersfield to view the working of the agreements effected between the railway companies and the corporations of those places. Before that inspection was made, the railway companies proposed that if the Corporation would restrict the running of their omnibuses to the area of the city they would undertake, on behalf of themselves and their associated companies, not to compete with the Corporation tramways and omnibuses inside the city, and to give protection to the tramways outside the city by charging a higher fare. This proposal was not entertained by the Corporation representatives.

THE DEMAND FOR A MONOPOLY.

After consideration of the position in Sheffield and Huddersfield, and also in Glasgow, the Corporation delegates submitted further proposals for co-ordination, but, at a meeting on October 15, the companies' representatives intimated that they could not agree to any proposal to give the Corporation a monopoly on tramway routes outside the city, and repeated their offer already referred to. They also submitted an alternative proposal. As both parties adhered to their respective objections, no agreement resulted, and the tramway representatives resolved to report the negotiations to the Corporation, so that the latter might determine what further action, if any, should be taken.

The matter in dispute relates to the Corporation's interests in tramways outside the city. Most of these lines are situated within three miles of the boundary, only three lines extending for a considerable distance beyond the three miles. These are the tramways to Coatbridge and Airdrie, which extend seven miles from the boundary; the line to Uddington, which extends four miles from the boundary; and the line to Paisley and Kilbarchan, which extends seven miles. In considering what further action should be taken, the Corporation are reminded that on August 19 they resolved to make application to Parliament for a complete monopoly by means of tramways and omnibuses of the transport of passenger traffic in the city and on tramway routes outside the city, or on routes in competition therewith, so long as the Corporation provides an adequate and satisfactory service either by tramways or omnibuses or tramways and omnibuses combined. Power is also sought to enable the Corporation, if so resolved, to abandon any of their tramways and to substitute omnibuses therefor.

Salford to Purchase Eighteen Omnibuses.—Salford Council has been asked to authorise the borrowing of £28,630 for the purchase of twelve single-deck and six double-deck omnibuses. When these vehicles have been obtained Salford will have a fleet of about 100 omnibuses. Alderman W. Greenwood, chairman of the Tramways Committee, has stated that the omnibuses are needed to complete the services. The Committee have no intention to substitute omnibuses for tramcars on any of their routes.

Digitized by Google

PROTECTION FOR TRAMCAR PASSENGERS.

ROAD USERS OPPOSING THE MANCHESTER PROPOSAL.

One of the clauses of the Manchester Corporation Bill, to be promoted in Parliament, would require vehicles to halt when approaching a tramcar which has pulled up at a stopping place. The clause reads: "When any tramcar is standing at a tramway stopping place in the city of which the position is shown by a notice sign or other indication, the driver of any vehicle who intends to pass on the near side of such tramcar shall draw up before arriving at such stopping place, and shall not pass such tramcar until the carriageway is clear of passengers entering or leaving the car." It is proposed that the penalty for non-compliance shall not exceed £5.

The promoters of the Bill are already encountering serious opposition. It is contended that the clause would greatly slow down traffic in the city, entail loss of time, and increase congestion. Organised opposition is being arranged by the Manchester Committee of Road Users, which is seeking to impress upon the City Council the inadvisability of retaining the clause in the Bill. Previous efforts of the City Council to have a similar clause inserted in earlier measures failed when it came before the committees of the Legislature, being either opposed by the motor organisations or refused on the ground that the proposal was one for national legislation.

SHEFFIELD EMPLOYEES' HOLIDAYS.

After considering proposals of the Establishments Committee of Sheffield Corporation relative to municipal employees' holidays, the Tramways and Motors Committee has recommended that so much of the proposals be granted as relates to holidays with pay being extended from eight to twelve days per annum (the latter period being that allowed to other employees in the department and to the work-people engaged in other departments of the Corporation) at an estimated cost of £4,740 per annum, subject to the conditions governing holidays with pay laid down by the Establishment Committee and the City Council from time to time. The Committee also recommended that the wages of certain vehicle builders (body-makers, coach trimmers and painters, coachfitters, machinists, brush-hands, and painters' labourers) employed in the department be increased by 1d. per hour as from August 19, 1929, at an estimated cost of £1,333 per annum.

The scheme that has now been sanctioned for annual holidays for the officials of the Corporation drawn up by the Establishment Committee is divided into three schedules. Under the first schedule, members of the staff with less than 20 years' service will receive 12 working days; the second section provides for 15 working days for all officers covered by the first schedule with more than 20 years and not less than 30 years' service; and the third portion relates to 18 working days for all officers under the first and second schedules with 30 years' service and over. The holidays are in addition to those usually given at Easter, Whitsuntide, August, Christmas, and New Year.

THE REJECTED OMNIBUS CLAUSES.

The Minister of Transport is credited with the intention of challenging the House of Lords on the Road Traffic Bill by re-inserting in the Bill, when it reaches the House of Commons, Part V. This part gives powers to local authorities to run public service vehicles on any road within their district and to purchase vehicles and land and erect buildings necessary for the purpose. Part V, it will be recollected, was, on the motion of Viscount Brentford, rejected by 24 votes to 11. If the clauses are again likely to be deleted when the Bill is returned to the House of Lords, the Minister's representative may at the critical stage withdraw them. In that event, it is stated to be highly probable that the contentious provisions will be submitted to the House of Commons as a separate measure.

Some trouble has been experienced with transport labour unions and transport owners with reference to the speed prescribed for heavy vehicles, and also as to the hours to be worked by drivers. It is stated that agreements have now been arrived at on those points. The Chief Constables' Association is said to be opposed to a concession made in the House of Lords giving five days, in place of three days, for the production of a driving licence when it cannot be produced on the demand of a constable.

Omnibus Operation at Nottingham.—Alderman Turney, chairman of the Nottingham Passenger Transport Committee, has recently stated that many of the Corporation omnibus services are not profitable. The Committee is trying to adjust the services more closely to public requirements, and from the experience gained there will be certain fare revisions. Commenting on this statement the "Nottingham Journal" says: "It is generally acknowledged that most of the Nottingham main omnibus services are not paying propositions. That fact, however, need cause no surprise, for it is common knowledge that the running costs of an omnibus are much higher than the running costs of the electric tramcar." The "Journal" adds that when the next municipal budget is submitted it will not be a great shock if it is found that the passenger transport department has either considerably reduced its usual contribution to relief of rates or if it makes no contribution at all, but it will be a case of what is lost on the roundabouts is gained on the swings, for what we lose in the matter of rate relief we gain in reduced fares—certainly a more equitable and acceptable gift to the passenger." During the past twenty years, it is pointed out, the tramways have contributed nearly £500,000 to the relief of rates.

MISCELLANEOUS NEWS AND NOTES.

Burnley Seeking Omnibus Powers.—Burnley Town Council has decided to promote a Bill to secure further powers for the running of omnibuses.

A Safeguard for Point Fitters.—Sheffield Tramways Committee is providing tramway point fitters with uniforms and white coats to distinguish them when working in traffic.

Omnibuses for Guernsey.—The Guernsey Railway Co. has put in service several Bean omnibuses. The vehicles seat twenty-six passengers and are licensed to carry thirty-six.

Collision at Luton.—Thirty passengers in a Luton tramcar which collided with a lorry laden with sand on January 17 suffered only from shock. The drivers of the vehicles were uninjured.

Stockton Votes for Omnibuses.—Stockton Town Council has approved the Parliamentary Bill, which proposes to empower the removal of the tramways and the substitution of omnibuses.

Nottingham's Extensive Omnibus Programme.—Nottingham City Council has been asked to approve of a loan of £35,000 for the purchase of motor omnibuses for replacement and additional routes.

Trolley Omnibuses for Torquay.—Torquay Town Council has decided to sanction under certain conditions the substitution by the Torquay Tramways Company of trolley omnibuses in the place of tramcars.

The Canadian National Railways have placed an order for 120,000 gross tons of structural steel for 4,750 new freight cars. The steel will be required to carry out the £6,000,000 construction programme for the next twelve months.

Discharged Hull Tramwaymen.—The case of the Hull tramwaymen who were recently discharged and the position of the General Strike volunteers is expected to come up for hearing in the King's Bench Division on Friday, January 17.

Merthyr-Cardiff Omnibus Service.—Merthyr Watch Committee has authorised the Corporation to run six omnibuses between Merthyr and Cardiff and has agreed that Cardiff City Council shall be allowed to run a similar number of omnibuses on the same route.

Bristol Tramway Fares.—The question of revised tramway fares in Bristol has been under consideration by the company for some time, and on January 1 the revised list was issued. All sections are not affected, but some of the changes provide longer stages for the old fares.

Free Passes at Leicester.—Leicester City Council on January 1 issued the first free passes to its councillors and aldermen. The passes are estimated to be worth anything up to £10 a year. It is stated that six aldermen and councillors have returned their passes to the tramways department.

Douglas Obtaining Tenders for Omnibuses.—Douglas (I.O.M.) Corporation has approved plans for the reconstruction of the tramway depot and propose to obtain tenders for the work. The Tramways Committee has authorised the manager to obtain tenders for the supply of seven omnibuses.

Leeds Town Council has decided to allow its councillors and aldermen to travel free on the municipal tramcars and omnibuses. It is estimated that the concession will cost the ratepayers between £300 and £400 per year. Seventeen other cities and towns grant the same privilege to the members of their councils.

Bradford Licensing Committee has granted an application from the Leeds Corporation Transport Department and the Railways Joint Omnibus Committee for running omnibuses between Bradford and Leeds, via Stanningham. The new service of omnibuses between Bradford and London, via Doncaster, to be run by the Yorkshire Road Car Company, was sanctioned.

New Omnibus Depot at Cardiff.—Eight acres of land abutting upon Cowbridge-road opposite the Dusty Forge Hotel have been acquired by the Western Welsh Omnibus Co., in which the Great Western Railway has a large interest. Two acres will be occupied by garages and other buildings; the remaining six acres will be reserved for staff welfare purposes.

Proposed New Thames Tunnel.—A report to the Kent County Council on the proposed lower Thames tunnel between Dartford and Purfleet states that it has been arranged when the Parliamentary Bill is passed the work will be undertaken by the Ministry of Transport. The cost is estimated at £3,000,000. If this sum is exceeded a toll may be charged for a time.

Reconditioned Cars at Glasgow.—The reconditioning of tramcars, says the "Glasgow Evening News," has proved a great success, and it is probable that the scheme will be extended to include all cars now in service. On many routes the cars are said to have won passengers back from the omnibuses. The Tramways Committee will consider the matter at an early date.

Summonses for 3,000 Middlesex Motorists.—At Enfield on January 6 fines ranging from 10s. to £5 were imposed on car owners who were found using the vehicles during the two weeks' grace allowed for renewal of licences which had expired on September 30, the defendants having then failed to take out licences. The solicitor for the Middlesex County Council stated that 3,000 motorists were to be prosecuted.

Future of Southport Transport.—Southport Tramways Committee has asked the general manager to present a full report on the tramways system, together with proposals for the use of trolley omnibuses. Another report will be obtained on the financial effect on the maintenance of roads in the borough owing to the running of omnibuses. The electrical engineer and borough treasurer have also been requested to present a report to the Tramways Committee on the financial effect on the electricity undertaking of the discontinuance of the tramways.

Digitized by Google

Birmingham Traffic Control Committee.—Birmingham Council has decided to form a Traffic Control Committee to deal with the regulation and distribution of vehicular traffic, the alteration or abandonment of existing routes for tramcars, omnibuses and trolley vehicles and the suggestion of new or alternative routes, and generally with matters the object of which is the improvement of traffic facilities in the city.

Barrow's Reduced Fares.—At a meeting of Barrow Town Council the report submitted by Mr. W. A. Pickthall, chairman of the Tramways Committee, stated that the reduced fares have not been a success. A loss has been made representing a farthing rate. The Mayor has appealed to the public to show their appreciation of the reduced fares, and it is stated that if there is not a better response the old fares will be restored.

Omnibus Fares in Manchester District.—Omnibus proprietors in the Manchester district are endeavouring to stop price-cutting. Representatives of the larger companies have been invited to a joint meeting by the Trade Administration Committee of the Manchester Transport Owners' and Commercial Motor Users' Associations to discuss plans for drawing up a standardised fare schedule. If this schedule is adopted it will be submitted to the Watch Committee for approval.

Gloucester Transport Management.—Gloucester Electricity Supply and Transport Committee has recommended the Council to relieve the electrical engineer, Mr. F. H. Corson, from the management of the transport undertaking owing to the extension of the area of the supply and electricity undertaking. The Committee has also recommended that Mr. S. Billington, at present assistant transport manager, should be appointed manager of the Corporation Transport undertaking at a salary of £550.

Co-ordination at Birkenhead.—As the result of a conference between Birkenhead Corporation Tramways and Omnibus Committees and the Cheshire County Council, Wirral Rural Council, and the Crosville Motor Co. (associated with the L.M.S.R.) arrangements have been made for the Corporation to run omnibuses throughout the local areas and to allow the Crosville Co. the same opportunities of arranging combined omnibus and ferry trips to Liverpool. Facilities are also to be given in Birkenhead to the Crosville Co. for their coach tours, which begin at Easter.

Bradford Trolley Omnibuses.—A Finance Sub-Committee of Bradford City Council has approved the scheme of the Tramways Committee to equip the Idle route for trolley omnibus service, at an estimated cost of £15,580. The Council has already accepted the scheme in principle, and it is expected that it will agree to the recommendation now made. In this case, the present terminus at Idle will be moved about three-quarters of a mile along the road towards Greengates to the junction of Albion-road and Leeds-road, and six new trolley omnibuses will be purchased for use on the route.

Great Western Railway and Bristol Tramways.—The terms on which the Great Western Railway has acquired a financial interest in the Bristol Tramways & Carriage Company have not yet been divulged, but it is understood that the agreement relates more to the motor omnibus services than to the tramways. It is not anticipated that the arrangement will make any material difference in the working of the tramways. The Great Western Company has now acquired an interest in practically every important road transport company operating in the West of England and South Wales, and has also negotiated jointly with the London, Midland and Scottish Railway for the acquisition of a 50 per cent. interest in the Birmingham and Midland Omnibus Company.

PERSONAL.

Mr. Archibald Page, chief engineer and manager, Central Electricity Board, has received the honour of knighthood.

Mr. Alfred Dryland, M.Inst.C.E., county engineer of Middlesex, has received the honour of C.B.E. in the Order of the British Empire.

Sir Percy E. Bates has been elected director of the Great Western Railway Company in succession to the late Captain F. Brian Bibby.

Mr. T. H. U. Aldridge, vice-president and general manager of the Shanghai Power Co., expects to be in England in the early spring.

Mr. J. M. Kennedy, of Messrs. Kennedy & Donkin, has been retained to advise the Government of Northern Ireland on matters connected with general electrical development.

Mr. J. Y. Shaw, over 30 years rolling stock superintendent of the Manx Electric Railway, Douglas, has retired. The directors have presented him with a cheque, and the staff with an engraved gold hunter watch.

Mr. D. R. Walters, F.C.I.S., who returned from Australia last April, after having been associated four years with A.E.C. (Australia), Ltd., of Sydney, has been appointed secretary and accountant of Four-Wheel Drive Motors, Ltd., and Hardy Rail Motors, Ltd.

Mr. Arthur Ponsonby, M.P., Parliamentary Secretary to the Ministry of Transport, has been made a peer and will take the title of Lord Ponsonby of Shulebred. Before he succeeded Earl Russell as Parliamentary Secretary, Mr. Ponsonby was private secretary to the Minister of Transport. His elevation creates a vacancy in the Brightside division of Sheffield.

Mr. Charles Furness, electrical engineer and tramway manager of Blackpool, was presented on January 3 with a George I. walnut tallboy from the members of the Town Council upon the occasion of his recent marriage. The Mayor, Councillor G. W. Gath, in making the presentation, said that Mr. Furness was a man they all appreciated from personal and business standpoints.

Mr. R. W. Frost has been appointed works manager of Strachans (Acton), Ltd., the coachbuilders. Mr. Frost was formerly manager of the London Improved Motor Co.

Burnley Tramway Management.—At a meeting of the Burnley Tramways and Omnibus Committee on January 2, applications for the position of manager, which will become vacant in March next, through the retirement of Mr. Henry Mozley, were reduced to 13, but further inquiries were not restricted to the candidates included in the following list: Charles E. Crossley, Chesterfield; Frank H. Crossley, Ashton-under-Lyne; Alfred S. Handsford, Bristol; A. A. Jackson, Nottingham; E. H. Mason, Manchester; Sydney Mitchell, Newcastle; R. H. Nuttall, Luton; Cyril P. Paige, Wakefield; Arthur E. Scorey, Southampton; H. P. Sharpe, Rotherham; Charles H. Stafford, Reading; Charles Symon, Aberdeen; I. A. Wild, Lincoln.

Memorial to Mr. J. C. Little.—At St. Peter's Church, Wallsend, on January 5, the Rector, Canon C. E. Osborne, unveiled and dedicated a tablet in carved oak in memory of Mr. John Charles Little, who was general manager and secretary of the Tyneside Tramways and Tramroads Co., and was identified with many social organisations in the town and with the Boy Scout movement. The Church schools are to be enlarged at a cost of £3,000 as a memorial to Mr. Little.

CONTRACTS.

Burton-on-Trent Transport Committee has recommended the purchase of automatic signals and warning signs at an estimated cost of £606.

Siemen's Electric Lamps and Supplies, Ltd., have received a contract from the Booth Steamship Co., Ltd., for the supply of Siemen's electric lamps for twelve months.

Edinburgh City Council, on January 9, adopted the Tramways Committee's recommendation to order 24 Daimler omnibus chassis, 24 Cowieson bodies, and 3 Morris-Commercial "Dictator" chassis.

Six-Wheel Double-Deck Trolley Omnibus for South Africa.—Clough, Smith & Co., Ltd., have received an order for their Karrier-Clough six-wheel, double-deck trolley omnibus for the Bloemfontein Municipality. This will be the first six-wheel trolley omnibus to operate in South Africa.

Liverpool Tramways Committee has placed contracts as follow:—Six-wheel, six-cylinder omnibus chassis, Karrier Motors, Ltd., twenty; Guy Motors, Ltd., ten; John I. Thornycroft & Co., Ltd., ten. Four-wheel six-cylinder omnibus chassis: Vulcan Motor and Engineering Co., Ltd., ten.

The English Electric Co., Ltd., have been awarded the following contracts: Twelve 750-k.v.a. 3-phase transformers, £3,348, Liverpool Power and Lighting Committee; sub-station switchgear, £6,338, Leeds Corporation; frequency changers and switchgear, Birmingham Corporation.

Glasgow Transport Committee has recommended the following tenders: Brake levers for bogie cars, Kilmarnock Engineering Co., Ltd.; lead-covered cable, Hackbridge Cable Co., Ltd., and Standard Telephones and Cables, Ltd.; special work, Edgar Allen and Co., Ltd., Hadfields, Ltd., and Titan Trackwork, Ltd.

Crossley Motors, Ltd., have just completed a repeat order for three of their 70 h.p. medium type rigid six-wheel vehicles for the Race Course Betting Control Board. These vehicles will be used together with the twelve Crossleys previously supplied for carrying accumulators and other equipment for use in connection with the totalisators.

London County Council has placed the following contracts:—Dorman, Long & Co., Ltd., supply of tramway rails and fishplates during 1930-31, £53,896; Frodingham Iron and Steel Co., Ltd., supply of tramway conductor rails during 1930-31, £7,232. Other tenderers were the Cargo Fleet Iron Co., Ltd., for rails and fishplates at £54,828, and Dorman, Long & Co. for conductor rails at £7,600.

John I. Thornycroft & Co., Ltd., have received an order from Aberdeen Corporation for five 32-seat omnibus chassis, this being the fifteenth repeat order for Thornycroft vehicles. The Argentine North-Eastern Railway has ordered sixteen chassis of various types, most of them rigid six-wheelers. Four of the three-ton War Office subsidy type have been ordered by Allmey & Leyfield, Ltd., of Liverpool, and repeat orders include those from the Bristol Co-operative Society, W. B. Dick & Co., and Triplex Foundry.

Glasgow Transport Committee have re-affirmed their recommendation to accept the offer of John Thompson Water Tube Boilers, Ltd., Wolverhampton, amounting to £90,327 for the installation of six new boilers for the Pinkston power station of the tramways department. About a month ago the recommendation of the Committee was sent back to them by the Corporation in order that they might consult with experts regarding the specifications for the installation of the boilers. The report by experts was submitted at the meeting of the Committee.

Salford Tramways Committee has recommended the acceptance of the following tenders: Associated Equipment Co., Ltd., for six 32-seat six-cylinder "Reliance" model single-deck motor omnibuses at £1,265, amounting to £7,950, plus £476 for spares (total £8,066), and for one omnibus at £1,275 to replace a vehicle destroyed by fire; Dennis Bros., Ltd., for six standard model, 32-seat, 6-cylinder single-deck motor omnibuses at £1,345, plus £437 for spares (total £8,507); three 50-52 seat standard model 6-cylinder double-deck motor omnibuses at £1,772 each, amounting to £5,316, plus £437 for spares (total £5,753); Leyland Motors, Ltd., three "Titan" 50-seat 6-cylinder double-deck motor omnibuses at £1,750 each, plus £556 6s. 6d. for spares (total £5,806 6s. 6d.).

Digitized by Google

FINANCIAL.

The Singapore Traction Co., Ltd.—The directors recommend a payment of a dividend of 7 per cent., less income tax, on the 7 per cent. accumulative preference shares.

Railway Dividend Dates.—The Great Western, London Midland and Scottish and the Southern Railways are expected to announce their dividends on February 12, the Underground Electric Railways of London Group on February 13, and the London & North-Eastern Railway on February 22.

Proposed Tyneside Outlay on Omnibuses.—At an extraordinary general meeting of the Tyneside Tramways and Tramroads Co., called for January 14, shareholders will be asked to pass resolutions postponing the period for repayment of the existing mortgages and authorising the raising of mortgages not exceeding £26,370 for the purchase of motor omnibuses, etc.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended January 8 amounted to £84,801, an increase of £5,153 compared with the corresponding week of last year. The route length was 166.29 miles, as compared with 165.78 a year ago. From April 1 (the commencement of the financial year) to January 8 (40 3-7 weeks) the total receipts were £3,393,471, an increase of £43,569.

Municipal Tramway Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended December 21 give total receipts of £432,025, or £26,905 more than in the corresponding week of last year. The aggregate receipts for 38 weeks amounted to £15,823,469, an increase of £660,905 over the corresponding period of last year.

The Foundation Company, Ltd.—It has been announced that, owing to a heavy lock-up of capital abroad, the directors are unable to provide the interest on the secured notes and the dividend on the preference shares due on January 1. In order to protect the position a receiver has been appointed by a Court of Chancery. It is hoped to make arrangements to secure the continuance of work on a number of important contracts for various authorities.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

Name.	Week ended	Latest Return. 1928-29.	1929-30.	+ or —	Aggregate. Wks.	1929-30.	+ or —
Aberdare U.D.C.	Jan. 7	462	622	+ 160	40¾	24,140	+ 2,389
„ Motor Buses	„ 7	225	297	+ 72	40¾	10,369	+ 1,606
„ Total	„ 7	687	919	+ 232	40¾	34,509	+ 3,995
Aberdeen Corp.	„ 1	4,580	4,932	+ 352	31¼	158,133	+ 13,209
Ashton-u-Lyne Corp.	Dec. 28	938	984	+ 46	39	35,911	+ 1,180
„ Motor Buses	„ 28	537	558	+ 21	39	19,040	— 2,679
„ Trolley Buses	„ 28	303	306	+ 3	39	11,019	— 698
„ Total	„ 28	1,778	1,848	+ 70	39	65,970	+ 3,161
Ayr Corporation	Jan. 4	446	499	+ 53	33	21,117	+ 1,247
Barrow Corporation	Dec. 14	530	552	+ 22	37	22,395	— 3,108
„ Motor Buses	„ 14	253	348	+ 95	37	14,543	+ 6,633
„ Total	„ 14	783	900	+ 117	37	36,938	+ 3,525
Belfast City	Jan. 3	9,977	10,756	+ 779	39½	445,268	+ 77,521
„ Motor Buses	„ 3	799	1,211	+ 412	39½	43,308	+ 31,985
„ Total	„ 3	10,776	11,967	+ 1,191	39½	488,576	+ 109,506
Birkenhead Corp.	„ 5	1,644	1,542	— 102	40	66,626	— 9,596
„ Motor Buses	„ 5	2,842	3,192	+ 350	40	144,050	+ 28,101
„ Total	„ 5	4,486	4,734	+ 248	40	210,676	+ 18,505
Birmingham Corp.	Dec. 31	24,142	21,992	— 2,150	39	1,074,596	+ 14,442
„ Motor Buses	„ 31	11,087	12,861	+ 1,774	39	523,680	+ 90,283
„ Trolley Buses	„ 31	522	467	— 55	39	22,136	+ 618
„ Total	„ 31	35,751	35,220	— 531	39	1,620,412	+ 105,343
Blackburn Corp.	Jan. 1	1,972	1,831	— 141	39½	77,254	— 4,423
„ Motor Buses	„ 1	Nil	367	+ 367	8⅔	3,115	+ 3,115
„ Total	„ 1	1,972	2,198	+ 226	...	80,369	+ 1,308
Bradford Corporation	Dec. 28	14,583	15,478	+ 895	39	581,070	+ 30,249
Brighton Corporation	Jan. 5	1,988	2,325	+ 337	40	106,504	+ 2,008
Burnley Corporation	„ 4	3,076	3,211	+ 135	...	...	...
„ Motor Buses	„ 4	603	664	+ 61	...	...	...
„ Total	„ 4	3,679	3,875	+ 196	...	...	...
Burton-on-Trent Cpn.	„ 5	421	861	— 440	52	19,485	+ 2,785
Bury Corporation	„ 5	2,155	1,992	— 163	40	80,162	— 8,255
„ Motor Buses	„ 5	298	940	+ 642	40	23,110	+ 7,936
„ Total	„ 5	2,453	2,932	+ 479	40	103,272	— 319
Cardiff Corporation	Dec. 14	7,063	7,944	+ 881	36⅔	286,426	+ 2,626
Chatham and District	„ 31	596	774	+ 178	52	59,700	— 6,300
Chesterfield Corp.	Jan. 7	1,883	2,095	+ 212	40	79,589	+ 3,009
Colchester Corp.	„ 8	439	596	+ 157	41	22,902	+ 4,154
Colne Corporation	„ 1	632	684	— 52	40	28,808	+ 452
Coventry Corporation	„ 5	2,078	2,261	+ 183	40	86,015	+ 1,855
„ Motor Buses	„ 5	1,410	1,874	+ 464	40	65,944	+ 18,091
„ Total	„ 5	3,488	4,135	+ 647	40	151,959	+ 19,946
Darlington Corp.	„ 4	1,045	1,132	+ 87	39⅔	40,020	+ 905
Derby Corporation	„ 4	2,916	3,428	+ 512	40	131,198	+ 9,578
Dover Corporation	„ 4	326	390	+ 64	40	16,668	+ 325
Dundee Corporation	Dec. 31	3,457	3,552	+ 95	32⅔	114,276	+ 4,153
East Ham Corp.	Jan. 4	2,146	2,358	+ 212	39⅔	92,537	+ 4,066
Edinburgh Corp.	Dec. 28	13,820	14,338	+ 518	32½	473,860	+ 15,836
„ Motor Buses	„ 28	3,247	3,632	+ 385	32½	113,685	+ 12,635
„ Total	„ 28	17,067	17,970	+ 903	32½	587,545	+ 28,471
Exeter Corporation	Jan. 8	744	827	+ 83	41	35,374	+ 490
Glasgow Corporation	Dec. 14	43,374	46,088	+ 2,714	28	1,246,038	— 6,209
„ Motor Buses	„ 14	4,408	7,007	+ 2,599	28	163,765	+ 95,295
„ Total	„ 14	47,782	53,095	+ 5,313	28	1,409,803	+ 88,986
Gloucester Corp.	Jan. 1	542	700	+ 158	39⅔	23,676	+ 1,407
Grimsby Corporation	„ 4	1,316	1,576	+ 260	40	58,563	+ 4,996
Halifax Corporation	Dec. 10	2,981	3,199	+ 218	36¾	122,173	+ 269
„ Motor Buses	„ 10	1,121	1,824	+ 703	26¼	46,962	+ 8,104
„ Total	„ 10	4,102	5,023	+ 921	36⅔	169,135	+ 8,373
Huddersfield Corp.	Jan. 4	5,779	6,323	+ 544	40	257,314	+ 2,653
Hull Corporation	„ 4	6,101	6,348	+ 247	40	243,095	+ 1,555
„ Motor Buses	„ 4	1,379	1,680	+ 301	40	56,634	+ 7,413
„ Total	„ 4	7,480	8,028	+ 548	40	299,729	+ 8,968
Ilford Corporation	„ 4	1,442	1,545	+ 103	39⅔	60,235	+ 955
Ipswich Corp. Trol.Bus	„ 4	1,192	1,383	+ 191	40	52,004	+ 3,460
Isle of Thanet	„ 1	373	413	+ 40	52½	45,723	— 1,996
Kilmarnock Corp.	„ 4	487	585	+ 98	33⅓	16,132	+ 1,012
Lancashire Un.	Dec. 22	2,086	2,248	+ 162	50⅔	115,062	— 6,628
„ Motor Buses	„ 22	3,825	4,574	+ 749	50⅔	223,049	+ 35,890
Leeds Corporation	Jan. 4	18,000	19,170	+ 1,170	39⅔	785,465	+ 22,125
Leicester Corp.	„ 4	7,746	8,537	+ 791	40	339,239	+ 16,560
Lincoln Corp.	„ 5	889	1,004	+ 115	40	37,372	+ 1,769
Liverpool Corp.	„ 4	29,013	30,868	+ 1,855	39½	1,200,065	+ 16,607
London County Coun.	„ 8	79,648	84,801	+ 5,153	40¾	3,393,471	+ 43,569
Luton Corporation	„ 1	350	371	+ 21	39¼	16,237	+ 888

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS—*Continued.*

Name.	Week ended	Latest Return. 1928-29.	1929-30.	+ or —	Aggregate. Wks.	1929-30.	+ or —
Maidstone Corp.	Jan. 2	251	169	— 82	39½	7,838	— 2,862
„ Motor Buses	„ 2	236	368	+ 132	39½	12,605	+ 3,642
„ Trolley Buses	„ 2	360	371	+ 11	39½	12,181	+ 1,570
„ Total	„ 2	847	908	+ 61	39½	33,624	+ 2,350
Manchester Corp.	„ 4	32,398	34,273	+ 1,875	40	1,403,135	+ 6,117
„ Motor Buses	„ 4	4,541	5,080	+ 539	40	199,001	+ 20,991
„ Total	„ 4	36,939	39,353	+ 2,414	40	1,602,136	+ 36,108
Middlesbrough Corp.	Dec. 31	1,228	1,248	+ 20	39½	45,493	— 487
„ Motor Buses	„ 31	490	620	— 130	39½	20,658	+ 2,978
„ Total	„ 31	1,718	1,868	+ 150	39½	66,151	+ 2,491
Newcastle-on-Ty. Corp	Jan. 4	9,062	9,404	+ 342	40	399,178	+ 18,910
„ Motor Buses	„ 4	1,910	2,090	+ 180	40	81,122	+ 6,543
„ Total	„ 4	10,972	11,494	+ 522	40	480,300	+ 25,453
Newport Corporation	Dec. 28	723	863	+ 140	39	30,067	+ 1,817
„ Motor Buses	„ 28	1,708	1,849	— 141	39	66,059	— 129
„ Total	„ 28	2,431	2,712	+ 281	39	96,126	+ 1,688
Northampton Corp.	Jan. 3	1,471	1,195	— 276	39½	44,639	— 13,822
„ Motor Buses	„ 3	271	699	+ 428	39½	26,809	+ 14,498
„ Total	„ 3	1,742	1,894	+ 152	39½	71,448	+ 676
Nottingham Corp.	„ 2	6,211	6,197	— 14	39¾	260,630	— 10,607
„ Motor Buses	„ 2	1,982	2,811	+ 829	39¾	97,604	+ 21,942
„ Trolley Buses	„ 2	548	587	+ 39	39¾	23,698	+ 1,364
„ Total	„ 2	8,741	9,595	+ 854	39¾	381,932	+ 12,699
Oldham Corporation	„ 4	3,415	3,545	+ 130	41	147,030	— 16,085
„ Motor Buses	„ 4	1,821	1,976	+ 155	41	82,476	+ 25,609
„ Total	„ 4	5,236	5,521	+ 285	41	229,506	+ 9,524
Plymouth Corp.	„ 4	3,581	3,859	+ 278	39½	151,895	— 3,617
„ Motor Buses	„ 4	1,859	2,365	+ 506	39½	80,578	+ 11,713
„ Total	„ 4	5,440	6,224	+ 784	39½	232,173	+ 8,096
Portsmouth Corp.	„ 4	5,393	5,801	+ 408	40	262,819	+ 10,995
Preston Corporation	„ 1	1,626	1,774	+ 148	39½	68,649	+ 846
„ Motor Buses	„ 1	439	542	+ 103	39½	19,789	+ 2,422
„ Total	„ 1	2,065	2,316	+ 251	39½	88,438	+ 3,268
Rawtenstall Corp.	Dec. 29	905	993	+ 28	39	33,262	— 1,948
„ Motor Buses	„ 29	523	608	+ 85	39	20,403	+ 2,738
„ Total	„ 29	1,488	1,601	+ 113	39	53,665	+ 790
Reading Corporation	Jan. 2	1,478	1,594	+ 116	40	61,235	+ 50
„ Motor Buses	„ 2	842	982	+ 140	40	37,050	+ 2,032
„ Total	„ 2	2,320	2,576	+ 256	40	98,285	+ 2,082
Rochdale Corp.	„ 4	2,819	2,677	— 142	...	115,827	— 12,007
„ Motor Buses	„ 4	1,302	1,673	+ 371	...	63,512	+ 9,323
„ Total	„ 4	4,121	4,350	+ 229	...	179,239	— 2,684
Rotherham Corp.	„ 6	2,401	2,897	+ 496	41	112,869	+ 8,951
Salford Corporation	„ 5	10,493	11,775	+ 1,282	40	450,343	+ 27,493
Sheffield Corp.	„ 4	20,113	21,335	+ 1,222	40	842,027	+ 24,840
Southampton Corp.	„ 1	3,178	3,315	+ 137	40	136,914	+ 6,703
„ Motor Buses	„ 1	663	933	+ 270	40	32,378	+ 8,563
„ Total	„ 1	3,841	4,248	+ 407	40	169,292	+ 15,326
Southend-on-Sea Corp.	„ 8	1,713	2,003	+ 290	39¼	100,450	— 171
Southport Corp.	„ 4	1,456	1,558	+ 102	39⅔	68,904	— 236
St. Helens Corp.	Dec. 31	2,140	2,308	+ 168	39¼	80,925	+ 5,030
Sunderland Corp.	Jan. 5	2,291	2,530	+ 239	40	98,235	+ 3,454
Swindon Corp.	„ 1	619	958	+ 339	39½	32,381	+ 8,929
Wallasey Corp.	„ 4	1,841	1,198	— 643	39⅔	52,925	— 34,137
„ Motor Buses	„ 4	699	1,930	+ 1,231	39⅔	84,444	+ 50,129
„ Total	„ 4	2,540	3,128	+ 588	39⅔	137,369	+ 15,992
Walsall Corporation	Dec. 29	3,478	4,015	+ 537	39	134,970	+ 11,416
Walthamstow Corp.	Jan. 4	2,127	2,428	+ 301	40	98,013	+ 6,683
Warrington Corp.	„ 2	930	919	+ 11	40	35,760	— 1,174
„ Motor Buses	„ 2	448	506	+ 58	40	18,348	+ 3,069
„ Total	„ 2	1,378	1,425	+ 47	40	54,108	+ 1,895
West Ham. Corp.	„ 2	5,527	6,041	+ 514	39¼	242,034	+ 20,227
Wolverhampton Corp.	Dec. 29	Nil	Nil	Nil	39	Nil	— 15,958
„ Motor Buses	„ 29	2,843	3,026	+ 183	39	109,751	+ 16,616
„ Trolley Buses	„ 29	3,292	3,709	+ 417	39	131,722	+ 22,828
„ Total	„ 29	6,135	6,735	+ 600	39	241,473	+ 23,496
York Corporation	Jan. 1	939	1,111	+ 172	40	42,187	+ 8
„ Motor Buses	„ 1	349	559	+ 210	40	16,537	+ 3,668
„ Trolley Buses	„ 1	45	27	— 18	40	2,221	— 462
„ Total	„ 1	1,333	1,697	+ 364	40	60,945	+ 3,214

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

Name.	Week or M'th.	Latest Return. 1928-29.	1929-30.	Aggregate. Wks. or *Ms.*	1929-30.	In. or Dec.
Anglo-Argentine	Jan. 7	£86,785	£80,996	1 w	£80,996	— £5,789
Brazilian Traction $	Nov.	3,698,213	4,145,850	11 m	45,366,904	+ 6,265,634
British Columbia $	Nov.	1,192,080	1,270,922	5 m	5,995,951	+ 373,718
Buenos Aires Lacroze	Jan. 5	13,579	12,530	26 w	308,184	— 28,012
Burma E. Sup. Co. Rs.	Nov.	66,905	62,191	4 m	249,852	— 25,126
Calcutta ... Rs.	Jan. 4	111,752	77,114	4 w	77,114	— 34,638
Cape Town	Oct.	30,021	27,501	...	...	...
Carthagena & Herrerias	Dec.	676	1,314	12 m	13,367	+ 277
Durban	Nov.	22,498	23,214	4 m	95,524	+ 2,777
East India	Dec.	3,670	3,721	5 m	19,082	+ 734
Kalgoorlie	Sept.	2,056	1,980	9 m	15,470	— 296
La Plata	Dec.	10,300	10,327	12 m	116,149	+ 2,604
Madras (2 weeks) Rs.	Dec. 31	46,317	50,043	50 w	1,054,503	+ 5,974
Para	Nov.	14,810	15,542	12 m	181,955	+ 2,809
Port Elizabeth ...	Oct.	7,404	7,593	...	...	...
Rangoon ... Rs.	Dec.	130,110	138,400	12 m	1,486,686	+ 8,290
Shanghai ... $	Dec.	321,970	345,415	12 m	4,073,322	+ 370,577
Singapore ... ...$	Dec.	111,000	129,000	3 m	388,000	+ 57,000
Winnipeg ... ...$	Nov.	553,186	597,391	11 m	5,993,875	+ 393,276

RAILWAY RECEIPTS.

1st Week ended Jan. 5th.	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week.	Inc. or Dec. to Date.
G.W.R.	203,000	+ 2,000	328,000	+ 13,000	531,000	+ 15,000	+ 15,000
L.M.S.R.	448,000	+ 2,000	706,000	— 13,000	1,154,000	— 11,000	— 11,000
L.N.E.R.	316,000	+ 8,000	557,000	+ 18,000	873,000	+ 26,000	+ 26,000
S.R.	270,000	+ 7,000	103,000	+ 3,000	373,000	+ 10,000	+ 10,000
Totals	1,237,000	+ 19,000	1,694,000	+ 21,000	2,931,000	+ 40,000	+ 40,000

ELECTRIC RAILWAYS.

Name.	Week Ended.	Latest Return. 1928.	1929.	+ or —	Aggregate. 1929.	+ or —
London Underground						
Common Fund Cos.	Jan. 4	279,000	304,000	+ 25,000	304,000	+ 25,000
Lond. & Sub. Group	„ 4	38,800	44,200	+ 5,400	44,200	+ 5,400
Metropolitan Railway	„ 4	35,900	37,400	+ 1,500	37,400	+ 1,500
Liverpool Overhead	„ 5	1,718	1,662	— 56	1,662	— 56
Mersey Railway	„ 4	5,115	5,275	+ 160	5,275	+ 160

Digitized by Google

THE Tramway & Railway World
WITH OMNIBUS & COACH SECTION
Founded 1892 LONDON, JANUARY 16, 1930 VOL. LXVII

LARGE BOGIE CARS ON MILAN TRAMWAYS.

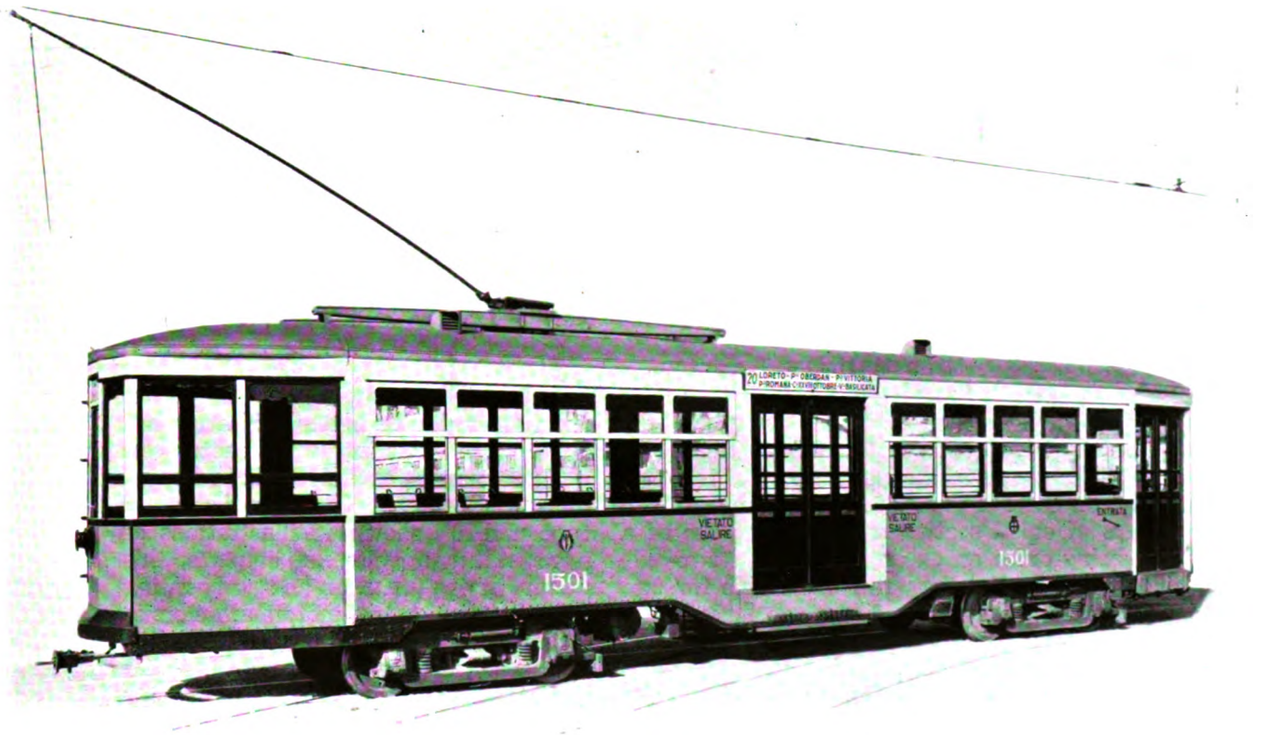
A BOLD RECONSTRUCTION OF A HEAVY CITY TRAFFIC SYSTEM.

BY ING. TOMASSO JERVIS.

The electric tramway system of Milan, one of the first established in Italy and in Europe, has always been considered one of the best planned and most efficiently worked city tramways, notwithstanding the rather awkward plan of the city streets. These run radially and circularly, much like a huge cobweb, from the central square, "Piazza del Duomo," where towers in its beauty the famous gothic cathedral. Most of the tramways in Milan spread out radially in all directions from the centre and one of the methods adopted for regulating this radial traffic had been to circulate the cars in a ring around the Piazza del Duomo, which was the innermost terminus, slowing down the incoming and speeding up the outgoing cars, according to traffic necessities.

In progress of time, however, this handy flywheel developed to such an extent as to cause great congestion of car traffic about the Piazza del Duomo, completely disfiguring the premises of the cathedral. The Milanese themselves, so proud of their cathedral, but on the other hand so practical in their ways and manners, were persuaded that the tramway "carrousel" nuisance in the centre of the city was a necessary evil and submitted to it, although many projects of improvement had at various times been put forward and dismissed.

It appeared to tramway experts, and the matter had been so impressed on the Milanese, that to abandon the above-mentioned central traffic regulator would be so dangerous a proposition, that for a long time the noisy maelstrom of cars in the Piazza del Duomo continued its unceasing whirl.



Large Bogie Cars have replaced the Small Car and Trailer on the Milan Tramways.

Recently, however, the Milan City Council, owning and operating the metropolitan tramway system, on its own responsibility carried into effect a radical change in order to clear the cathedral square of tramway traffic. In the autumn of 1926 the ring of tracks in the Piazza del Duomo was removed and the radial lines were connected one to another tangentially to the square, thus radically changing the route of the cars, which run now on direct lines through the old and narrow central streets, whose sharp bends offer many

Digitized by Google

occasions for traffic congestion. This linking up of already long radial lines was certainly calling for trouble and irregular running, and the first weeks of the new service appeared to confirm the pessimistic expectation of tramway experts and of the public. The difficulties were confronted courageously and new street traffic regulations were issued, closing certain narrow streets through which the tramway lines pass to all ordinary vehicles and restricting them to certain directions only in the central parts of the town.

The public, which generally opposes all radical changes, was appeased with an able but risky plan of adopting a single fare for the through trip, which heretofore was split in two on changing cars at Piazza del Duomo, and of abolishing certain limitations on the use of the return morning-tickets with 50 per cent. reduction. This policy told necessarily on the earning capacity of the system and, but for the increase of traffic it promoted, and for certain savings in working expenses, would quickly have wrecked the tramways budget. The already popular Milan tramways gained new favour and now the Milanese can boast the cheapest ordinary fare in Europe, being able to ride five or six miles for less than a penny. The change

Interior of Bogie Car—Milan Municipal Tramways.

in running involved extra expense owing to the adoption of a new type of car and the rebuilding or alteration of the tracks in the central part of the city.

Formerly, on most of the radial lines, cars were run with trailers of equal seating capacity, the use of a single car being quite an exception. These two-axle cars had proved in the long run unsuitable for two reasons; the train they formed was too long (62 ft. overall), too heavy (the load per axle approximating 9 tons in the rush hours), too slow in acceleration and cumbersome in the general working and handling of the train, especially in rush hours, in which the public continued, notwithstanding regulations, to crowd in dangerous clusters on the steps. The loose coupling with the trailer interfered also with the braking and the exceptional load, combined with frequent emergency brakings, racked in very short time the most substantial car bodies, whilst the track also suffered.

To avoid heavy bills in body repair and track maintenance, the best way was to resort to four axle cars of the light construction now rendered possible by the new all-metal and light-alloy bodies.

A double bogie car body could be built to give accommodation to as many passengers, if not more, than the car with trailer, and would allow a quadruple equipment with higher accelerating power and easier running conditions. Another important item in the single high-capacity car was the saving of the trailer's ticket-collector.

The single car chosen for the Milan system is a thoroughly tested and old established American type with low floor, front-entrance, central-exit, such as originated from a similar design introduced about fifteen years ago on the Cleveland system, U.S.A., and now called the "Peter Witt" type. Five hundred of these cars have been ordered from local manufacturers after a careful choice of design so as to embody all the desired features.

The body of these new cars is an all-steel extra-light girder type frame with as much light metal in the window framings, hand rails and sundries as consistent with a reasonable cost. The weight reduction in the body by the use of light metal parts has been 580 lbs., but in some experimental patterns, in which "electron" has been used for the truck transoms, air brake cylinders and wheel centres, a weight reduction of 1,750 lbs. has been attained. A larger contribution of light metal extending to the body frame would allow another two tons reduction in total weight, but so far the engineers of the Milan tramways did not think fit to venture. In order to compare the old Cleveland car in the improved form adopted by the Milan tramways, a few figures may usefully be quoted :—

	Cleveland Car, 1915.	Milan, 1928 Peter Witt Car.	
		Standard pattern.	Extra light pattern.
Length of car overall	51 ft. 1 in.	42 ft. 2 in.	
Width over side plates	8 ft. 2 in.	7 ft. 7 in.	
Height of floor above rail (26 in. wheel)	32 in.	29½ in.	
Number of passengers : seated	55	47	
" " standing	77	73	
" " total	132	120	
Weight (tare) of car in service	50,716 lbs.	32,600 lbs.	27 100 lbs.
Weight of pair of trucks	10,600 lbs.	10,000 lbs.	9 000 lbs.
Type of truck	Brill 27	Commonwealth Steel Corp.	
Weight of quadruple motor equipment with control	10,700 lbs.	6,300 lbs.	6,300 lbs.
Weight of brake equipment	1,826 lbs.	1,800 lbs.	1,800 lbs.
Weight of body	27,500 lbs.	14,500 lbs.	10,000 lbs.
Maximum load per axle	12,500 lbs.	8,500 lbs.	6,775 lbs.
Tare per passenger	382 lbs.	272 lbs	225 lbs.

The main improvement on the old type has been in the body construction and in the traction motors, the former due to better utilisation of materials, the latter to progress in electric motor construction.

These motors, entirely built in Italy, embody many interesting features. They are of the I.C 221 "Ansaldo" type and are shown in illustrations on a following page. At 550 volts, 20 amperes, this motor gives 32 H.P. at 915 R.P.M. on an hourly rating. The bogies, in each of which two motors are mounted, have 26 in. driving wheels and, with a gear reduction in the ratio of 1 to 5.7, the cars have a tractive effort of 3,600 lbs. and attain a speed of 12.5 miles per hour. The motors are well ventilated and very light, weighing with gears and gear casing of sheet steel only 1,135 lbs. each, or 4,540 lbs. for the quadruple set, without the control equipment.

The dimensions of the motor are such as to allow with 26-in. wheels a ground clearance of 5 in. and an easy arrangement in the cast-steel frame truck. Magnetically it is a low-saturation motor allowing an extensive range of speed and gradual speeding up, with good acceleration. The balancing and springing of parts on the Commonwealth truck and the proportions of unsprung to sprung weight is such as to secure very easy running of the car even at high speeds.

Digitized by Google

The Cathedral Square—Piazza del Duomo—until recently the Tramway Centre of Milan.

The Piazza del Duomo after the Removal of the Tramway Tracks and their diversion to other Streets.

The Reorganisation of Milan Tramway Routes.

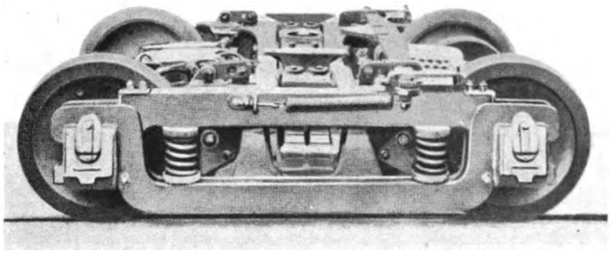
Digitized by Google

It is expected to attain with the new cars an average increase in the commercial speed of about 15 per cent. over the speed of the older cars, which was already higher than that obtained on some similar systems.

It is too early yet to give figures for the reconstructed system, but it may be interesting to quote some of the latest records (during the change over from radial to through lines, but yet with the old type of cars with trailers). Counting as two the car and trailer, the number of passengers carried per car-mile averaged 9 in 1927-28, the earning capacity per car-mile being about 3.40 lire and the average fare being 37.8 centimes per passenger. In the same years, 1927-28, the average number of cars running in

The Motor used on Bogie Cars at Milan.

daily service and covering 105,000 miles was 880. In 1926 the cars covered a total of 32,700,000 miles, and in 1928, 39,000,000 miles, with an increase of traffic of about 20 per cent., without any appreciable increase in personnel. This increase is partly due to a better utilisation of the rolling stock but mostly to increase in commercial speed. Consequently it is expected to attain a much higher mileage per car when all the 500 new units have superseded the old cars, and a substantial reduction in personnel-wage



Bogie Truck with Two Motors—Milan Tramways.

expenses. The near future will show by the financial results whether in the Milan tramways reconstruction all points of a difficult problem have been duly considered and successfully surmounted. At all events, a step forward has been made in the interest of the citizens by providing the city with a safer, up-to-date service at the lowest possible fares.

RECONDITIONED CARS AT GLASGOW.—The reconditioning of Glasgow tramcars, has proved a great success, and it is probable that the scheme will be extended to include all cars now in service. On many routes the cars are said to have won passengers back from the omnibuses. The Tramways Committee are to consider the matter at an early date.

ELECTRICAL EQUIPMENT OF THE M.E.T. "PAY-AS-YOU-PASS" CAR.

AN EXAMPLE OF MODERN TRAMCAR CONTROL.

The recent publication in these columns of experimental introduction of the "Pay-As-You-Pass" car on the Metropolitan Electric Tramways has attracted general attention, and in view of the special conditions to be met, a full description of the control equipment is of interest. The equipment was designed to the specification of the engineers of the tramways of the London Underground Group. The various questions of suitability for the service conditions, space available, accessibility, durability, weight and cost had all to be carefully considered from the various angles of the operating companies. A new point was that the controller had to be designed for a seated motorman.

A scheme of control has been instituted which meets the arduous requirements of heavy city service, the controller being so designed that the operation of one

Drivers Cab in M.E.T. Pay-as-you-pass-car.

handle accelerates the car, retards it, introduces field shunting when the conditions warrant this being done to secure increased free running speed, and finally causes all power current to be ruptured on contactors external to the controller itself.

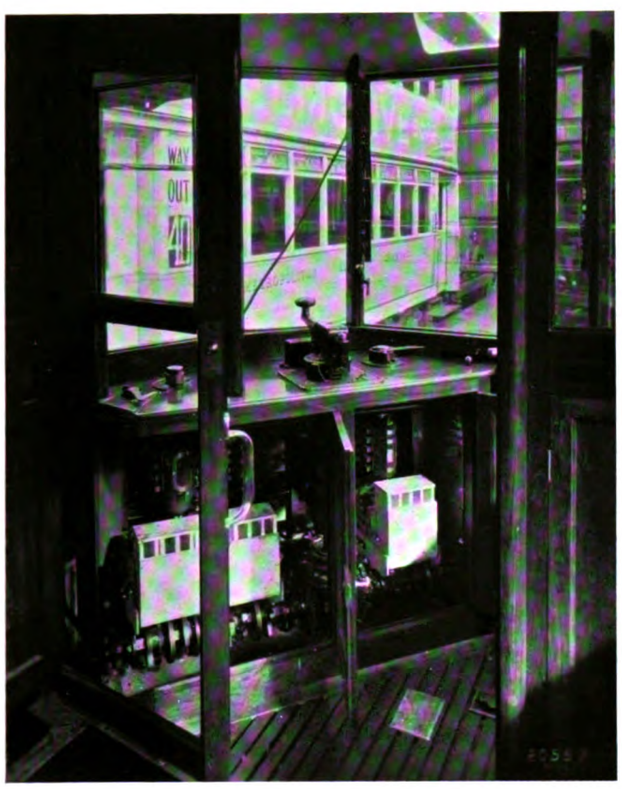
Fitted to the bogie trucks are two B.T.H. type 509 AS traction motors of 50 H.P. each. These maximum traction trucks have 28-in. driving wheels, and the control gear—a product of the Rugby works of the British Thomson-Houston Co., Ltd.—is mounted in a somewhat unusual manner, as may be noted from the illustrations. The driver, seated at the controls, is completely protected from the weather, and it will be seen that the controller is housed in a wooden locker placed at an angle across the car platform and suitably lined with fireproof material, thus departing from the

Digitized by Google

usual practice and obviating the necessity of a sheet steel cover. The operating handle, reverser, and motor cut-out spindles project through the surface of the polished top of the locker.

The working parts of the controller are mounted on an open steel framework which is constructed so as to give complete access to the interior, there being two doors in the front of the locker, while a third door, opening through the driver's partition, provides access to the left-hand side of the controller.

Another illustration shows all inspection doors open and the location of the removable arc chutes. The controller removed from the locker is the subject of another photograph in which the general assembly within the framework is clearly visible. The final illustration gives a more detailed view of the gear-drive connecting the vertical and horizontal shafts, and also the arrangement of the cam-operated contactors. It will be noticed that some of the contactors

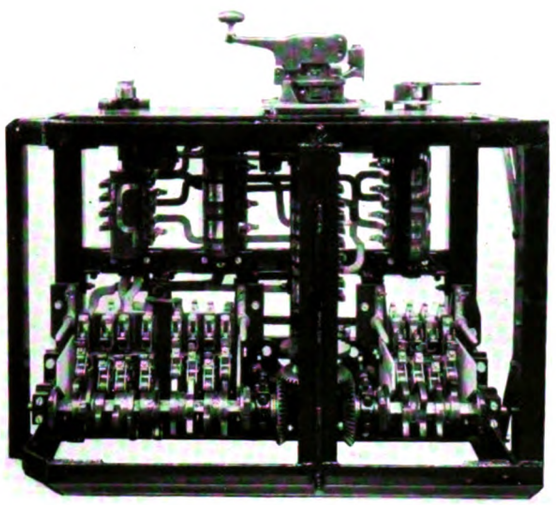


Driver's Cab with Control Locker Doors Open to show Control Gear.

are provided with "knock off" cams in order to ensure mechanical opening independent of gravity operation.

Arcing on the controller has been reduced to a minimum by fitting the B.T.H. patent line-breaker equipment, and the control handle is arranged so that the familiar "dead man" feature can be incorporated. When the controller handle is moved to the first power notch, an auxiliary switch is closed, thus energising the operating coils of the line-breaker contactors through an auxiliary contact finger unit. The line-breaker closes, thus connecting the motors to the trolley wire with all the starting resistance in series. Should the controller handle be moved too quickly through the first power notch, however, the line-breaker will not close. This valuable characteristic effectively protects the equipment from violent acceleration and consequent overloading when getting away from rest.

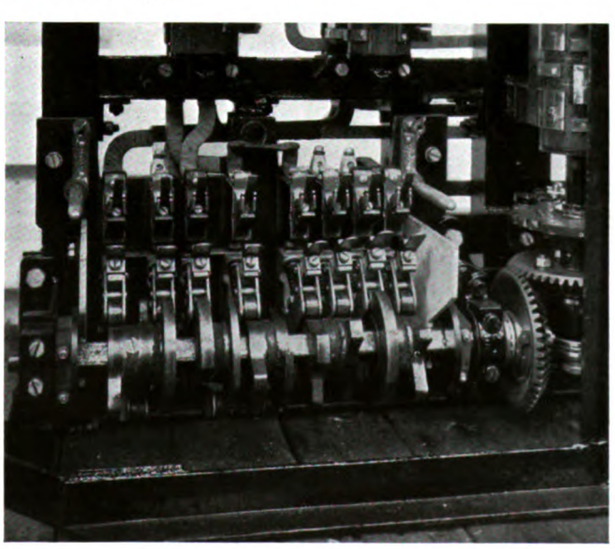
The car may be notched up to full speed in the usual way, but any movement of the controller handle from the power point towards the "off" position immediately opens the auxiliary switch, thus interrupting the control circuit of the line-breaker, which opens. A fresh start can only be made by bringing back the



Controller and Steel Frame Removed from Locker in Driver's Cab.

controller handle to the "off" position when, on proceeding to the first "notch," the auxiliary control finger enables the operating coil circuit of the line-breaker to be again completed.

This ensures that the power circuit is always made and broken on the line-breaker contacts and not on the controller, an arrangement which is of considerable advantage.



Detailed View of the Gear-Drive and Cam Operated Contactors.

In the event of failure of voltage, or the trolley leaving the overhead wire, the line-breaker automatically opens and a fresh start can only be made after restoration of voltage by first bringing the controller to the "off" position.

Digitized by Google

BIRMINGHAM DOUBLE-DECK BOGIE TRAMCAR.

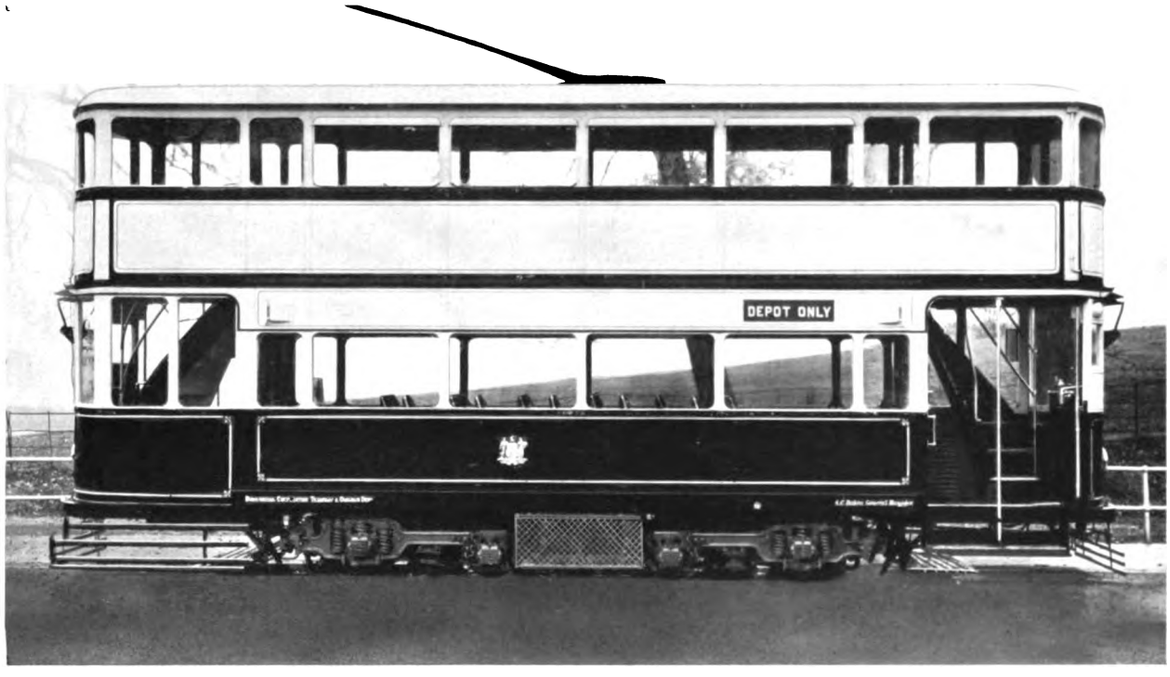
NOTABLE REDUCTION IN WEIGHT ACHIEVED IN EXPERIMENTAL CAR.

The problem of reducing dead weight in tramcars, which has long been a subject of thorough study and investigation in the United States of America, has received comparatively little attention from designers in this country. This is surprising in view of the effect of unnecessary weight upon power costs, and its elimination is not the least of the factors demanding the attention of tramway operators. Tramway rolling stock on many systems has been greatly improved during the last few years. More comfortable seating accommodation, improved lighting, better ventilation and, in some cases, heated top-decks, have assisted to attract passengers. Keener competition from other forms of road transport and augmented travelling facilities have made speed an essential factor in the attraction of custom to the tramways. While the fitting of more powerful motors has largely increased the average speed of tramcars on many systems, the resultant increase in power costs has doubtless prevented their wider adoption. In some of the larger cities where motors of increased power have been fitted, it has been found that the limitations imposed upon speed by traffic congestion have increased power and rolling stock maintenance costs to an extent which is disproportionate to the advantages gained.

With a view to reducing operating expenses while, at the same time, giving the travelling public the benefits of modern improvements in regard to passenger accommodation and speed, an interesting experiment is in progress at Birmingham, for particulars of which we are indebted to Mr. A. C. Baker, the general manager of the transport system.

Realising that, if satisfactory results were to be obtained, considerable reduction in tramcar weight was necessary, an experimental car was designed with the object of meeting the conditions imposed by the above-mentioned considerations. The unladen weight of the complete car, which is shown in the accompanying illustrations, is 13 tons 12 cwt., against 16 tons 15 cwt., for a car of similar accommodation but of standard pattern and build. When the car was designed, it was hoped to effect a reduction of 4 tons in weight. The actual saving of 3 tons 3 cwt. is, however, an achievement of no mean order, and an all-round reduction of 20 per cent. in weight of the vehicles in use on any system would doubtless reveal some notable results in regard to current consumption.

Birmingham's experimental car has seating accommodation for 63 passengers, 27 inside and 36 outside. It is a double-deck, covered-top vehicle with vestibules at top and bottom, thus freeing the car from unpleasant draughts. The body, which was built by Short Bros., Ltd., is constructed with a steel under-frame and all the framing, pillars, braces, panelling, etc., are of aluminium or aluminium alloy. The interior finish of both upper and lower saloons is most attractive, both having domed ceilings of bird's-eye maple, suitably ornamented. Siemens "Silvalux" lamps have been installed, ten in the lower and eight in the upper saloon, and the lighting in both saloons is brilliant, but without unpleasant glare. Ventilation is achieved by means of four "Ashanco" air extractors in each saloon. In the upper saloon they are fitted in the roof, while in the lower they are fitted in the panels above the windows. In addition "hit and miss" type ventilators are fitted to the lower saloon doors, and eight "Quicktho" drop lights are arranged in the upper saloon. Both saloons are fitted with transverse Lamplugh reversible seats, those on the upper deck being upholstered in brown antique leather to match the interior finish, while those in the lower saloon are upholstered in a patterned brown moquette to harmonise with the oak finish and leather-faced lining panels. The limitations imposed upon the width of the body of the vehicle by the 3 ft. 6 in. gauge have been responsible for the arrangement of the seats shown in two of the illustrations.



New Light Weight Double-Deck Bogie Car—Birmingham Corporation Tramways.

Digitized by Google

Interior of Upper Saloon of New Birmingham Car.

Interior of Lower Saloon of New Birmingham Car.

Digitized by Google

It will be seen that a convenient gangway of ample width has been provided, which would not have been possible had the practice of staggering the seats been adopted.

The body is mounted on bogie trucks, each with two motors of 40 H.P. The controllers, which are

End View of New Birmingham Car.

arranged for 40 per cent. field shunting, have four series notches, three of which are in parallel, and one shunt coming into operation on the eighth notch, non-automatically. The bogies are of the Burnley " maximum traction " type, having 26-in. driving wheels and 20-in. pony wheels, with 48-in. wheel-base. Transmission is by stub tooth gear and pinion, having 62 and 13 teeth respectively, and giving a reduction in the ratio of 4.77 to 1. The Maley & Taunton air-brake system has been adopted and the air-operated wheel-brake takes effect on all eight wheels. The working pressure of the brake system is 80 lb. per sq. in. and pressure is obtained from a three-cylinder air-compressor. The car is equipped with an air-operated track brake, combined with the pony wheels, with magnetic braking in addition if required. An auxiliary wheel-brake, operated by the usual hand staff, is provided.

The trolley base is insulated from the roof and Hudson & Bowring life-guards and Philipson side-guards are fitted.

Results from this experimental car have, up to the present, been highly satisfactory and it has given rise to many appreciative expressions on the part of the public. All expectations so far as speed and comfort are concerned have been met and it has been found that acceleration and deceleration are slightly better than with a standard car. Tests to ascertain the values of these latter properties were carried out with the car laden and unladen on two sections of track—one level and the other with a gradient of 1 in 14, and the results carefully plotted. Examination of the resultant graphs, which are reproduced in Fig. 2, will show how satisfactory the car is in these respects and that its adhesive properties have not been impaired by the reduction in weight.

Decrease in current consumption is, of course, the most marked feature in operation of the car and represents a saving of about 17 per cent. In this respect the experimental car was compared with six standard high-speed cars running on the same route for six days. Two curves, shown in Fig. 1, show the average consumption of current by the vehicles concerned in the test.

Details of the traction equipment and the chief dimensions of the car are given in the table below :—

Motors.—English Electric, DK105/3K, 40 H.P., roller bearings.

Controllers.—English Electric, L33E.

Total unladen weight	13 tons 12 cwts. 2 qrs.
Length of body overall	33 ft. 6 in.
Height over trolley plank	15 ft. 6¼ in.
Height inside lower saloon	6 ft. 2¾ in.
Height inside upper saloon	5 ft. 10 in.
Overall width	6 ft. 3 in.

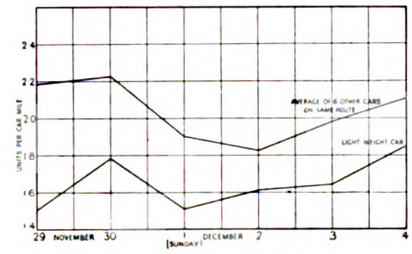


Fig. 1.

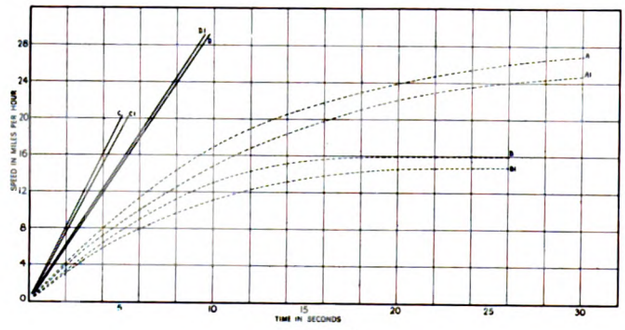


Fig. 2.

			Maximum per ft. sec.		Average.	
A	Acceleration on level	(unloaded) ...	3·14	...	1·76	1st 20 Secs.
A1	,, ,, ,,	(loaded) ...	2·57	...	1·60	
B	,, up 1 in 14	(unloaded) ...	2·28	...	1·17	
B1	,, ,, ,,	(loaded) ...	2·20	...	1·06	
C	Deceleration on level	(unloaded) ...	8·40	...	5·86	
C1	,, ,, ,,	(loaded) ...	8·40	...	5·53	
D	,, down 1 in 14	(unloaded) ...	9·70	...	4·40	
D1	,, ,, ,,	(loaded) ...	9·60	...	4·50	

SENTINEL-CAMMELL RAIL CARS.

Sentinel-Cammell Rail Cars are described in an interesting, finely illustrated and well produced volume issued by the Railway Department of the Sentinel Wagon Works, Ltd., Iddesleigh House, Caxton Street, London, S.W.1. In the introduction the reader is reminded that in 1906 the first Sentinel patent steam unit was constructed. Seventeen years later, in 1923, this unit, of which over 7,000 had been constructed, was incorporated in the first Sentinel-Cammell rail car. Since that date, by co-operation with the leading railway engineers of the world, the Sentinel-Cammell has been greatly improved. Passenger traffic on branch lines is in many cases being lost, owing to severe road competition, and in many cases the traffic is being profitably maintained by a Sentinel-Cammell unit, which can be run at a lower cost per passenger-seat mile than road transport. The rail car is now in operation on 44 railways in 28 countries all over the world. Over twenty cars with a seating capacity varying from 32 to 120 passengers each have been delivered. It is claimed that the average all-in cost per mile of these cars has proved to be less than half the running cost of a light train. Hints are given on the choice of a car and there are statements of performances and results of cars weighing from 25 to 100 tons. There are descriptions and excellent illustrations of numerous types and the volume is well worthy of a place on the shelves of every railway manager and engineer.

Digitized by Google

SOME AMERICAN TRANSPORTATION DEVELOPMENTS IN 1929.

By C. K. Lee
(General Engineer, Westinghouse Electric and Manufacturing Co.).

If there have been any who doubted the future of electric railways they must have been reassured by this year's news of tremendous new investments—investments both actual and prospective. Not for many years have so many electric cars been purchased—New York's order for subway cars was the largest single order ever placed for such equipment—and a single steam railway has announced a programme amounting to between £20,000,000 and £30,000,000.

Electric railways (so it has seemed to an onlooker) have passed through several phases in the last few years. First came something not far from despair, with audible cries of distress. Then followed more cheerful sounds, which might be suspected as whistling to keep up courage. Now the industry, sure of itself and confident of the future, is tackling its problems seriously.

Large Orders for Cars for New York, Brooklyn, Chicago, and Other Cities.

New cars, which for several years were bought singly for experiment, this year have been bought in scores and hundreds—300 for the Eighth Avenue subway in New York, 100 for Chicago, 100 tramcars for Cleveland, and 100 for Brooklyn. Then there are 50 for Montreal (added to 106 recently received), while many smaller cities and towns have added considerably to their rolling stock.

Many of these orders have a special interest. The New York Eighth Avenue Subway order marks the transition from words to action in a traffic problem on which seas of printer's ink have been poured in the last few years. Large though this purchase of 300 cars is, it is but a beginning, for this new subway is expected to require from 1,500 to 2,000 cars eventually. The design of the cars shows unusual care to please the passenger—the seats are the most comfortable ever used in subways, and the lighting and ventilation have been carefully studied. There are no trailers, every car being driven by a pair of Westinghouse 190 H.P. motors, which are more powerful for their weight than is usual. The control includes automatic acceleration (control current from storage battery) with field control of motors.

The same interest in the passenger's comfort is evident in the big order for tramcars for Chicago. These have leather seats, pleasing lights, and attractive interiors. A special effort is made for speed. The cars are intended to accelerate at 3 miles per hour per second—double the rate common a few years ago—and they can attain a maximum speed of 40 miles per hour. Quick entry and exit are provided for by doors allowing three lines of passengers to enter and three lines to leave the car simultaneously. The car weighs 20 tons, seats 60 passengers, and has four 50 H.P. motors. The motors of 60 of the cars are Westinghouse No. 516-D. Large though this order is, still larger are Chicago's proposals to spend from £40,000,000 to £60,000,000 for a subway, for additions to elevated railway and tramway lines, and for the additional cars involved.

Popularity of "VA" Control.

Another effort to solve the problem of quick loading and faster schedules is shown in the hundred tramcars for Brooklyn-Queens service. These have turnstiles in which the passenger drops his fare, and Westinghouse variable automatic ("VA") control, which is expected to give faster and smoother acceleration in city traffic. The cars weigh about 16½ tons each and have Westinghouse quadruple 350 H.P. motors.

The hundred cars for Cleveland resemble those already in use there. Very large, each car seats nearly 60 passengers, and has four 50 H.P. Westinghouse motors. Being fitted with HL control, they can operate in trains, and will occasionally do so.

Certain tendencies seem fairly clear. Passenger comfort, which the authorities of two decades ago thought of minor importance, is conspicuous in the New York Subway and Chicago tramway cars. High speed is another distinct tendency. It is this demand which has produced the variable-automatic control, which firmly established itself this year. High schedule speeds in cities requires rapid acceleration, which for comfort's sake must be very smooth and should, therefore, be automatic. Such automatic control, hitherto unfitted for tramcar service by the exigencies of traffic and gradients, is now made available by allowing the motorman to set the accelerating rate. Variable-automatic control is in service or has been specified at Detroit, Chicago, Pittsburg, Los Angeles,

Operator's Station in Car with Variable-Automatic Control.
Foot Pedals for Acceleration and Braking are shown on the left.

St. Louis, and New Orleans (trolley omnibus), as well as in the case of the large Brooklyn order.

Dynamic braking, furnishing car heat, has shown results of some promise in connection with this control, though it is not essential to it. The modern form of dynamic braking is extremely smooth and constant in action, and of course shows economies in wear of brakes and wheels. The saving of energy for car heating is very material. It appears that under favourable circumstances, such as cold climates and heavy gradients, such an arrangement may well be justified, but in conjunction with air brakes, not as a replacement of them.

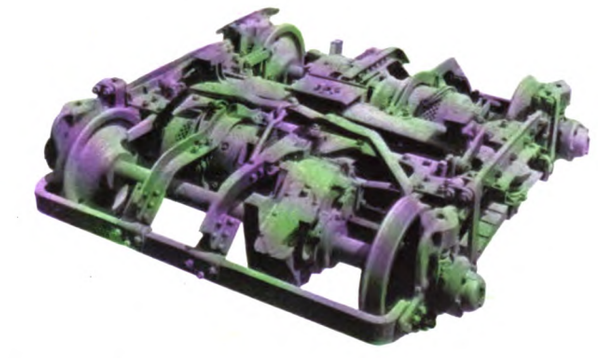
Value of High Speeds.

Believers in the value of high speed have for years pointed to the success of the North Shore Line, whose big, powerful cars, with 560 horse-power available, have long been advertised as making 80 miles per hour in regular service. The 25 new cars for this line will be to the same specification, but with a simpler and lighter control unit. Speeds as great, with much lighter cars, are intended by another inter-urban line, the Cincinnati, Hamilton, and Dayton, whose

Digitized by Google

cars, weighing 19½ tons, have reached 72 miles per hour on test, and are expected to run still faster. Their Westinghouse motors have exceptionally high speed, and are extraordinarily light for their power. This venture into fast service is a courageous and considered move against rubber-tyred competition. It is expected to demonstrate that an inter-urban or private right of way, especially in level country, is naturally fitted to give higher speed with greater safety than can either omnibuses or private motor cars on the public highway.

Not alone in inter-urban service is high maximum speed felt to be a weapon against rubber-tyred competition. Even in city running, where large pinions



Type 1425A Westinghouse Motor and W-N Drive.

and high balancing speeds were long ago mathematically proved fallacious, local conditions and human nature make them worth reconsideration. In Pittsburgh, especially on rising gradients, the use of cars geared for 40–45 miles per hour on the level has resulted in an actual saving of time. What is perhaps more important, an impression of speed has been given to the passenger, who does not enjoy climbing long gradients on a car geared for low speed while numberless motor cars overtake him. The added speed, both real and apparent, may well be worth its cost in energy.

W–N and Timken Drives Prove Commercially Successful.

Of the many radical innovations proposed during the last few years, one, the high-speed, spring-borne motor, seems firmly established. For the drive from such motors to the axle several means are still advocated, principally the Westinghouse-Nuttall double-reduction, roller-bearing, helical spur gear set, and the various worm drives of which the Timken has been most widely used. Both methods have been used with success. Of the year's new cars, Westinghouse-Nuttall drive is employed on 13 cars for Youngstown, Ohio, and on 12 inter-urban cars for the West Penn system (Alleghany Valley Railway) following a very extended experience with ten similarly-equipped cars by the same system in Parkersburg. Of the Timken drive, it is understood that equipments for some 40 cars have been sold. These two, the Westinghouse-Nuttall and the Timken, thus appear to be the only ones of the 25 new forms of drive proposed in the last two years to attain material commercial success.

Experimental cars built throughout of aluminium have apparently been quite successful. They possess extraordinarily quick acceleration, with low energy consumption. They appear thoroughly practicable, but so far can be counted on the fingers of one hand, although perhaps a hundred omnibuses with all-aluminium bodies have been built. Since every car or omnibus has many parts necessarily made of other material, the term "all-aluminium" here, of course, means merely the use of aluminium for framing and structural members as well as sheathing. This metal is very commonly used for piping and conduit, and for many fittings and minor castings. Large rolled I-beams and other structural shapes in aluminium have recently become available, and extended use of aluminium in the future seems very probable.

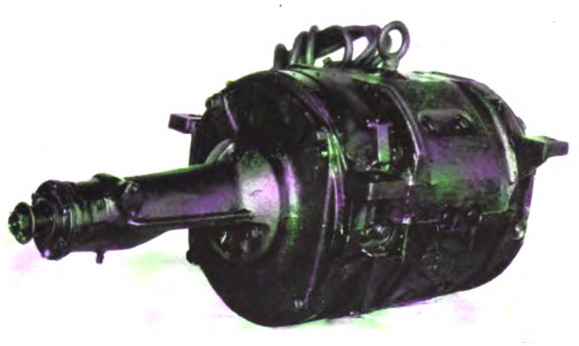
In motor development must be included the 300-volt motor, permanently in series in pairs. While it is not expected that this will supersede the 600-volt motor, it has very definite advantages for some service. It yields extremely good commutator performance, especially noticeable in high-speed motors. It allows a very simple and satisfactory scheme of dynamic braking and, in connection with other changes, permits a material increase in the rating of many sizes of motors. Notwithstanding the troubles prophesied, it has been extremely satisfactory in service.

The Trolley Omnibus.

The modern form of trolley omnibus, or trackless trolley, has this year shown very promising development. The performance of the eleven put into service last year at Salt Lake City has decided the operating company to proceed with this type of vehicle. New Orleans is experimenting with trolley omnibuses, and a general interest is apparent throughout the country, while various railways are studying the question of their suitability for local conditions.

Power supply, since the general adoption of automatic operation, has not, perhaps, offered so much scope for improvement as rolling stock, but some mention is merited by a new 2,000 kw. converter sub-station in Detroit (automatic, of course), which apart from the incoming cable, has no high-tension wiring whatever.

Taking all in all, 1929 has been a very auspicious year for the industry. Its troubles are not ended, and as human affairs go they never will be; but with a



Type 1426 BT Motor for Use with Timken Drive.

fundamentally superior method of supplying an increasing need, with courage and, as the year has shown, with capital, it can face the future confidently.

Pennsylvania Electrification Programme.

The great electrification programme, announced by the Pennsylvania Railway in November, 1928, must overshadow any review of recent developments in that direction, especially as an additional £20,000,000 plan,

Digitized by Google

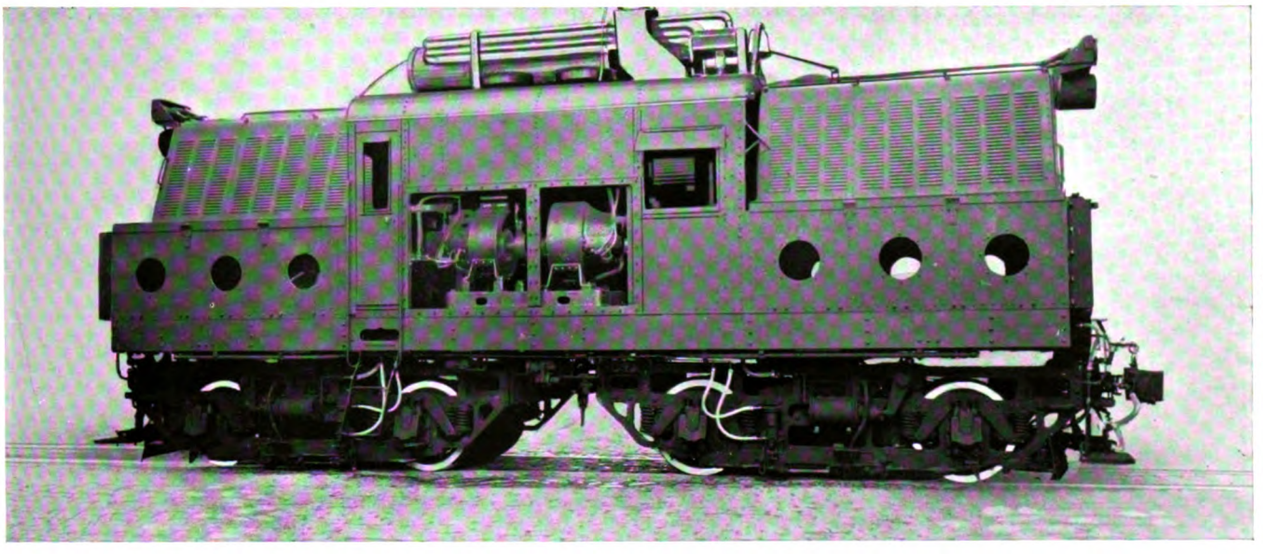
in addition to the original plan, has been announced this year, including the electrification of the 108 miles from Wilmington to Washington. Work on the Philadelphia-Trenton section has been proceeding actively, and considerable quantities of material and apparatus have been ordered.

Most American electrifications of the past have been directed to the overcoming of some difficult local operating condition such as a tunnel, a ruling gradient, a terminal, or dense suburban traffic. The Pennsylvania Railway electrification programme, though it involves terminals and suburban traffic, has for its object a major improvement in handling heavy traffic even where no unusual obstacles exist. In connection with this railway's already extensive electrical suburban operations in the Philadelphia area, there were ordered this year 59 motor cars, all but four of which closely resemble those already in use and widely described, each having a pair of Westinghouse 225 horse-power alternating-current motors. This new order will make a total of 345 motor cars operating under the Pennsylvania's 11,000-volt overhead system.

The record of 1929 also included the formal opening on January 12 of the Great Northern Railway's eight-mile Cascade Tunnel, the longest tunnel in the Western Hemisphere, described in THE TRAMWAY AND RAILWAY WORLD of January 17, 1929. The Westinghouse locomotive which hauled the first train through the tunnel also began the all-electric operation between Skykomish and Wenatchee, 73 miles. It will be recalled that this tunnel, with the electrification and other improvements, shortened the route by 8.9 miles, eliminated 7.5 miles of snow sheds and more than ten complete circles of curvature, and reduced the height of the summit by 502 feet.

The Illinois Central Railway, whose suburban electrification at Chicago has been so successful, has this year taken another step in its programme of completely electrifying that area. Freight handling between 31st and Monroe Streets will be by Westinghouse 100-ton electric locomotives recently ordered and soon to be in service. The new locomotives are mounted on two four-wheeled swivel trucks. The total rating (one hour) of the four geared axle-hung motors is 1,800 horse power, and the tractive effort (one hour rating) is 31,000 pounds, though much greater effort is, of course, available at starting. The actual useful maximum tractive effort will be increased about 10 per cent. by an arrangement preventing wheel-slip due to weight transfer. The switches can be connected in pairs, and operated as a single unit, thus doubling the capacity per train. The locomotives have a maximum speed of 40 miles per hour.

Another most interesting locomotive built during the year was one of 75 tons and 600 H.P. which, operating normally from a 600-volt overhead wire, carries a storage battery which permits it to work on tracks which have no current supply. Built by Westinghouse for the Chile Exploration Company, it follows American standards throughout, and is to handle ore trains being loaded by electric shovels on the benches of an open-pit mine. In this area, where overhead wires would be in the way, it will run on the battery. On the trolley system it will take the full ore trains down the mountain and bring up empties. The air brake compressors also serve as a supply for pneumatic car-dumping. Like the Illinois Central Railway locomotives, this engine is on a pair of four-wheel swivel trucks, with four geared, axle-hung motors. The locomotive is powerful for its weight, and is very little heavier than many straight trolley locomotives of equal power without a battery.



75-ton Baldwin-Westinghouse Combination Storage Battery, Third Rail and Pantagraph Locomotive—Chile Exploration Company.

Chile has furnished another interesting development this year in the conversion to automatic operation of the electrified Chilean State Railway's power supply. Five 3,000-volt 2-unit 4,000-kw. stations have been made completely automatic, following closely the successful automatic sub-stations of the Paulista Railway in Brazil. A considerable saving in labour is realized.

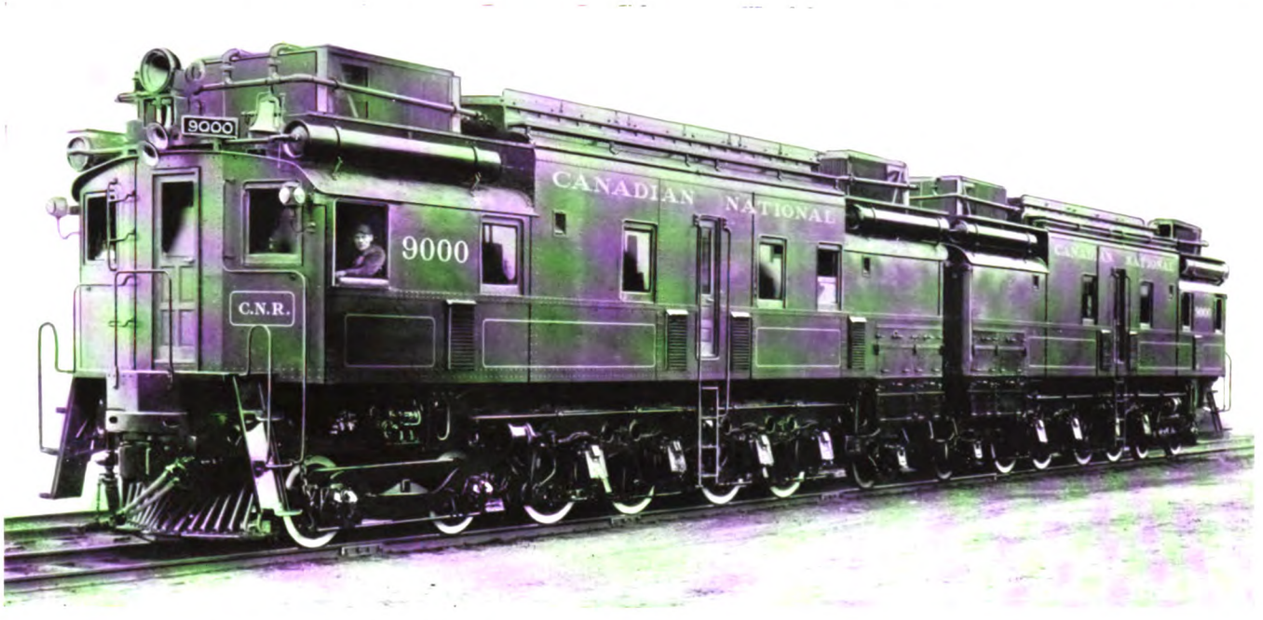
DIESEL ELECTRIC PROGRESS.

Diesel electric traction, now that a light compact high-speed engine has become available, has made marked progress. A year ago attention was attracted by its success on the Canadian National, whose fleet of Diesel electric cars were followed by the first Diesel electric locomotive powerful enough for main-line service. In these cases, however, the engines were built in Scotland, though the electrical equipment was by Westinghouse. At that time, the only example of such engines, American built, was on the Long Island

Digitized by Google

locomotive of 83 tons, 600 H.P. Since then, the new Westinghouse Diesel-electric locomotive, built at South Philadelphia, has attracted more public attention than the now well-established petrol-electric machine. Its light weight, small size, and adequate power have made possible the first commercial rail cars with American-built Diesel engines. A number of such cars have been built or ordered, including seven more for the Canadian National Railway, two for the Reading Railway, two for the Pennsylvania Railway, and one with double power plant for the Erie Railway. This latter car, rated at 600 H.P., carries no passengers, being devoted to baggage and mail, but it serves as locomotive for two standard steel coaches in fast local service at Youngstown, Ohio. The Pennsylvania cars carry baggage and passengers ; the Reading, baggage, mail and passengers. Each is rated 300 H.P., will handle a trailer in fairly fast local service, and can reach a speed of 60 m.p.h.

The seven Canadian National Railway cars are fitted with a new and larger engine rated 400 H.P. at 900 R.P.M.



New High Speed 2,660 H.P. Diesel Electric Locomotive—Canadian National Railways.

Like the 300 H.P. unit, it has six cylinders, but these are 9 in. by 12 in., an increase of ¾ in. in diameter, and another advance is an increase of 100 R.P.M. in the engine speed. The complete weight of a 400 H.P. generating set, including engine, flywheel, bedplate, silencer, generator and exciter is less than 8 tons.

Low weight and high power, important in motor cars, are equally so in shunting locomotives. It is not surprising, therefore, that the light-weight, high-speed Diesel electric system has this year been chosen for a number of yard locomotives.

The cautious prophet, bearing in mind the perfection of the steam locomotive, and the ability it has shown in recent years to improve and develop, will not indulge in predictions of its downfall. But the Diesel-electric system can be said this year to have become, for cars and light locomotives, no longer an experiment but an approved means of effecting large savings in fuel, labour, and maintenance. Larger units are possible, and the railway executive of to-morrow will find that, no longer confined to steam alone, there is a choice of motive powers, even for main-line work.

BIRKENHEAD TRAMCAR RECONSTRUCTION.

A Successful Experiment.

Popularity has been largely restored to Birkenhead's tramway system by the successful reconstruction scheme which was inaugurated in the spring of this year, under the direction of Mr. Cyril Clarke, the tramways manager. Since the first electric tramway was established in Birkenhead twenty-eight years ago, except for improvement in the speed of the cars, practically no change has been made in the quality of accommodation for passengers, and it has been suggested that the noise and discomfort to which they were subjected was largely responsible for the increasing popularity of the motor omnibus, which offered upholstered comfort and comparative silence.

While elimination of the hard angular seats presented no difficulty, the reduction of noise and vibration—particularly with old cars of the single bogie type—presented more serious problems. The efforts which have been made in this direction have resulted in the attainment of a surprising pitch of comfort and silence. Various experiments which were directed to the lessening of vibration and noise have culminated in the insertion of rubber cushions between the frame and body which, besides quietening the cars, have done much to absorb road shocks. Another factor helping to deaden sound is the cork carpet on the floors.

On the lower deck the seats are arranged transversely so that passengers face the direction in which the car is travelling. All the old panelling has been removed and replaced with fabric-covered metal, the seats being covered with moquette. Although the alteration of the lower deck seats has reduced the seating capacity by two, much has been gained in the way of easier and quicker entry and exit for passengers. The seats on the upper deck are upholstered in leather.

An improved system of lighting has been installed throughout the cars and, although the number of lamps has been increased, the light has been robbed of its former uncomfortable brilliance and is now

Digitized by Google

pleasantly subdued. Other features are an improved scheme of ventilation, more comfortable strap-holders, handles and rails covered with duroid covering, platform floors covered with a fireproof non-slipping composition which is cleaner and safer than wooden strips, air bells and an improved type of repeating gong for the driver. The cars have also been re-trussed so as to secure greater stability and eliminate unpleasant swaying. It is proposed to fit electric power brakes which will be used in ordinary service instead of the mechanical brakes at present employed.

The reconstruction work has been carried out at the Laird Street tramcar depot, and the satisfaction felt by the Tramways Committee has been endorsed by many members of the travelling public who have expressed their warmest approval in letters to the Corporation.

AN ALL-STEEL OPEN TRAMWAY CAR.

An interesting innovation in the construction of open cars was recently made by The J. G. Brill Company. This is probably the first "All-Steel" open car yet made. The only wood employed was in the flooring, underframe fillers for nailing, bulkheads, roof and some of the finish.

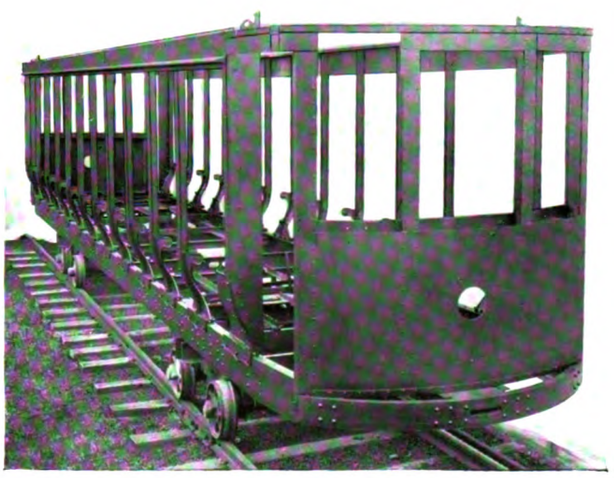
Single truck wooden cars had been furnished previously for this particular system, but the last cars were required to be mounted on bogies. The difficulties confronted were many; practically every feature against the use of bogies was present in limited clearances, for length and width, also end overhang, governed by narrow streets and sharp curves around street corners.

Views of the skeleton steelwork, also of the complete car are shown below. The general dimensions of the car are as follows:—

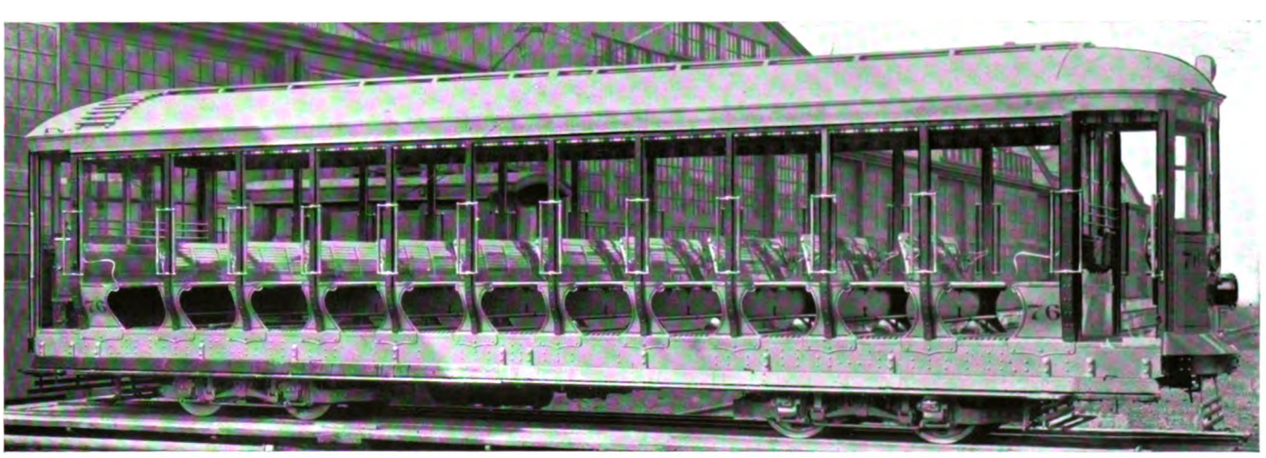
Length of car body over corner posts	31 ft. 6 in.
Length of car body over vestibules	37 ft. 6 in.
Centre to centre of sideposts	2 ft. 8 in.
Gauge of track	3 ft. 3⅜ in.
Radius of sharpest curve	36 ft. 0 in.
Diameter of wheels	26 in.
Seating capacity	60 passengers.
Maximum capacity	150 ,,
Weight of steel frame	5,380 lbs.
Weight of complete car body without electrical or air equipment thereon	12,450 lbs.
The complete car weighed	27,050 lbs.,

of which the bogie trucks with wheels and axles weighed 8,800 lbs. and the 4 motors weighing 3,800 lbs.

A further point of interest is that these particular cars had to be designed specially for the necessary dismantling in sections for transit from seaport inland to destination. The facilities for handling heavy and bulky packages were not of the best, with the result that more dismantling of the complete car than is usual was found essential. For example, after complete erection, equipping and testing at the makers' works, the bodies were taken apart in the following manner: The vestibules whole, the bulkheads whole, and sideposts with seat end panels fastened thereto, taken out individually and packed in bulk; roof in four pieces, two hoods separate and the body roof in two sections; letter panels in two pieces; steel underframe in two sections (split in centre); and roof boards and other long parts in two pieces with suitable reinforcement.



Frame of All-Steel Open Tramway Car.



All-Steel Open Tramway Car with Cross Seats.

Length of car body over bumpers	38 ft. 6 in.
Length of wheelbase of truck	4 ft. 0 in.
Width of car body over sills	6 ft. 3 in.
,, ,, posts	7 ft. 1 in.
,, ,, steps when down	8 ft. 0 in.
Height from top of floor to top of roof	7 ft. 8¾ in.
Height from rail to top of floor	2 ft. 8 in.
,, ,, ,, trolley board	10 ft. 7 in.
,, ,, ,, step	17 in.
Height from top of step to car floor	15 in.
Truck centres	20 ft. 0 in.

Digitized by Google

THE
Tramway and Railway World
FOUNDED IN 1892.
Offices:
AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C. 2
Telephone: TEMPLE BAR 2948
Telegrams: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD *can be obtained at the following rates—*

FOR THE UNITED KINGDOM—Twenty-five Shillings per annum.
FOR ALL PLACES ABROAD—Twenty-five Shillings per annum. Postage to Canada 1s.; to other places abroad, 9s. 6d.
Single Copies—One Shilling (Postage, 2 pence—abroad, 5 pence).
All back numbers—Two Shillings.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS.

The Editor will consider contributions offered for publication in THE TRAMWAY AND RAILWAY WORLD (including the Omnibus and Coach Section) by those conversant with the subjects that come within the scope of this journal. All information of a practical character relating particularly to the engineering and operating branches of transportation will receive prompt attention. Original illustrations will also be welcome.

LONDON, JANUARY 16, 1930.

London's Transport Misfortunes.

The present position as regards the London traffic problem recalls to memory the singular series of misfortunes which for many years has frustrated all attempts at a solution. Various commissions and committees appointed by the Governments of the day inquired and reported; and however much their proposals differed in detail they all concurred on one point, namely that a traffic board should be set up to co-ordinate and regulate London street traffic. The most exhaustive of these inquiries was by a Royal Commission which reported about a quarter of a century ago. So plainly was the case made out for a traffic board or over-ruling traffic authority that there seemed to be no excuse for inaction. Most unfortunately party politics were dragged into the matter. The Conservatives were in favour of the traffic co-ordination scheme; the Liberals were against it. The peculiar perversity of events obfuscated the whole affair. When there was a Conservative Government there was contemporaneously a Liberal majority in the London County Council. Conversely, when there was a Liberal Government there was a Conservative majority in the London County Council. So nothing was done, except by the way of a *reductio ad absurdum*. The Board of Trade were instructed to publish annual statistics of London traffic. Then last year when the London County Council, in which there was a Conservative majority, came for the first time to an actual agreement with the "Underground" group of companies for a common management and a common pool of net receipts, and when Bills for carrying out the scheme were passing through Parliament, a general election took place resulting in the return of a Labour Government to office. The whole elaborately worked out scheme was incontinently thrown into the melting pot. When an alternative scheme, promised by the Labour Government, will materialise no one knows. The misfortunes of well thought out schemes of rationalization are endless. Politics have been responsible for depriving Londoners of improvements in local transport which are urgently needed and which under an enlightened Government—we use the word in its general sense—they would long since have secured.

A Year of Progress.

Both as regards traffic receipts and improvements in cars and omnibuses the year 1929 marked an improvement on most of the post war years. An examination of the weekly returns reveals numerous gratifying increases, headed by the notable addition of £108,315 for Belfast. This chapter of history demonstrates the benefit of a change from ruinous rivalry to co-ordination, and the credit for this is in the first place due to the Tramways Committee for their support of Mr. Wm. Chamberlain, who had then lately left Leeds to take up the most difficult task that a manager ever had to face. Fortunately the Government of Northern Ireland also accepted his expert advice not only as regards the city but for placing all of the road passenger traffic of the province on a sure foundation. Great Britain has not advanced so far along the path to co-ordination. It was only in the last month of the year that the Road Traffic Bill was introduced, and although it has passed through Committee in the House of Lords the measure was shorn of a principal provision, viz., the clauses that were intended to place local authorities on an equality with private operators by the conferment of powers to operate omnibuses. That this provision will be reinstated

Digitized by Google

in the Commons is not unlikely. In another sense the omnibus has been to the fore during the twelve months. With its chassis carried on giant air tyres, the trolley omnibus is not only superseding some tramcar routes where conditions are suitable but is being adopted as a complete transportation system for towns and their outbounds. So efficiently are the vehicles constructed and operated that deputations have come from abroad to inspect them. Tramcar construction, too, as respects electrical equipment and improved seating has shown progress. Reconditioning of bodies has become general, and as a result of the classic paper on trucks, their weight and methods of propulsion, submitted to the Congress of the Tramways and Light Railways Association by Mr. G. H. Fletcher, of the Metropolitan-Vickers Electric Co., greater attention is being given to conditions that contribute to more speedy, economical and quiet operation. As will be seen from an article elsewhere in this issue Birmingham has produced a car of light weight in an effort to reduce operating costs. The London company tramways have continued their task of building cars on lines that are altogether novel, two experimental cars having been placed in service during the year. Now that the London County Council have nearly completed the task of transforming their cars on Pullman lines, they are this year entering the rivalry for double-deck cars of more striking design.

Progress of Canadian Electric Railways.

In its publication "Electric Railway Statistics" the Canadian Electric Railway Association presents illuminating figures and charts showing the growth of the Canadian tramways up to the end of 1928. The most remarkable evidence of the firm position of the tramways industry is the marked improvement during the last four years. Passenger revenue increased from 45 to 50 millions of dollars, or nearly as much as the total revenue in 1900. Revenue per car mile is almost 38 cents (19d.), a figure somewhat below the maximum attained in 1922, but the drop is accounted for largely by the increased operation of omnibuses which are not yet obtaining full revenue. The extension of omnibus routes to sparsely populated districts would tend to lower the average revenue per car mile, but this figure should again be raised when, the districts being more easily accessible because of the omnibuses, the populations increase. The operating expenses have since 1926 decreased slightly to a little below 15d. per car mile, and in 1927 the ratio of operating expenses to traffic revenue was 70.3 per cent., comparing favourably with that of many British tramways. After 33 per cent. of the total revenue had been allocated to reserves, payment of interest, etc., there remained in 1927 a net income of nearly 5.5 per cent. These results have been achieved in spite of the fact that wages since 1920 have been much higher in relation to the cost-of-living index, than in previous years, although fares have not been raised in the same ratio. It is of interest in this connection that the average wages of Canadian tramway employees are higher than the average of all the other principal industries. Another sign of the progress made is the increase in the annual number of passengers, in spite of the large increase in the number of private cars. In 1928 the number of passengers was 804,630,491. As a rough indication of the relative traffic density in Canada and Great Britain, this figure is illuminating, being only some 14 per cent. greater than the total for London alone. If the low traffic density in Canada is taken into account the progress of the tramways is even more remarkable than appears at first sight. It is partly due to the policy of taking over competing omnibus concerns. During 1928 a larger number of independent concerns was thus acquired than in all the previous years. Unfortunately conditions in Canada and in Great Britain in regard to the operation of tramways are so different that no fair comparison can be drawn. The greater traffic density here affords scope for more severe competition, and it by no means follows that the policy in Canada could be adopted in the British Isles with equal success. The Canadian results do, however, demonstrate the value of the tramcar as a means of public transport. Notwithstanding the enormous improvement in autobus design achieved in recent years, it remains true, in this country as well as Canada, that there is no other means of local transport so cheap and efficient as the tramway.

Digitized by Google

ELECTRIC SHOCKS.

By Edwin O. Catford, A.I,E.E.
(*Electrical Engineer, Edinburgh Corporation Transport*).

The voltage of supply has steadily gone up. I can remember when 50 volts was considered a proper pressure for house supply. Then circuits at 100 volts were followed by the raising of the pressure of supply to 200 and 250 volts. These were the days of continuous current supply. Now that in the interests of cheapness of distribution alternating current is taking the place of direct current supply, what will be the result from the point of view of safety?

Electrical engineers are agreed that shocks from alternating current are more dangerous than shocks from direct current. The experts who drew up the Institution of Electrical Engineers' Regulations for the Electrical Equipment of Buildings define the expression "extra low pressure" to mean a pressure between conductors normally not exceeding 30 volts in the case of alternating current and 100 volts in the case of direct current.

This implies that alternating current is more than three times as dangerous as direct current of the same voltage. Dr. Paul Duhem and other medical authorities who have closely studied the matter in France say that alternating current has four times the effect of direct current on the human body. If, however, we take the Home Office statistics of electrical fatalities as our guide we would give a far higher estimate of the danger of alternating current as compared with direct current.

It is not possible to describe any commercially used electrical voltage as safe. The reason for this is that in no respect do individuals differ more than in their ability to withstand shock. An electric shock that will scarcely be felt by one person will prove fatal to another. I know of no means of ascertaining what voltage is safe to apply to any individual.

The only good advice to offer is to keep clear of all shocks, and that is the advice the writer invariably gives. A life spent amongst electrical work has taught him that he is able to withstand direct current electric shocks applied in the usual way from hands to an "earth" on which one is standing up to 550 volts direct current. That, however, is no guide whatever for another person.

The resistance of the body to shock depends on three things. The resistance of the skin at the points of entry and departure of the current, the resistance of the body itself, and there is also a personal equation concerned which varies with each individual and cannot be measured or estimated. A shock is felt less in good health than in bad. Anyone with a dry, hard skin, such as an electric welder or a baker, will suffer far less from shock than a laundry worker. A painter also usually comes off very badly. The body is wonderfully adaptive and if one expects a shock it hurts less than if the same shock is applied unexpectedly.

My own feeling under a direct current shock is of a momentary acutely unpleasant tingle right through the body and especially at the points of entry followed by a feeling of discomfort so long as the shock lasts, then a final sharp tingle at the moment of breaking contact. Why this separate sharp feeling at the moment of make and break?

Investigations of medical men in France indicate that a steady electric current has a continuous effect on the muscles during the whole time it is applied, with a maximum effect at make and a nearly equal effect at break. The nerves, however, are quite indifferent to a steady flow of current, but feel acutely any sudden application or sudden break of current. Here is seen the difference between a direct current and an alternating current shock. Direct current is felt continuously by the muscles, but by the nerves only as a momentary effect.

Alternating current of 50 cycles, however, not only has continuously maximum effect on the muscles, but also gives a kick to the nerves a hundred times every second. The writer has had only slight personal experience of shock from alternating current and has no intention of increasing that experience. He will follow his own advice to others, and avoid any occasion of receiving a shock, but if in spite of all the shock comes he will mentally brace his body to withstand it.

It is fortunate that just when alternating current is everywhere displacing direct current, the use of bakelite fittings has been widely introduced. Here is the line of safety. All exposed parts of lampholders and switches should be made of bakelite or other insulating material, in fact all portable electric fittings, except for their current carrying and magnetic circuit parts, should be built of insulating material throughout. Portable electric drills and other tools, apart from the undoubted necessity for efficient earthing, should be totally encased in a tough insulating material. Electric fires should be built of a tough fireproof insulating material. There are several such materials on the market and there is no doubt that this is a case where demand would be followed by production. Intelligently directed demand is needed until in the near future the present effort to earth non-current carrying parts of fittings will be ended by the prohibition of exposed metal on any domestic electric fitting whatever.

It may be noted that although Dr. L. H. Baekeland discovered that remarkable product of carbolic acid and formaldehyde, now known as bakelite, in 1907, it has only come into common use during the last year or two. Had demand come earlier supply could have followed without waiting all these intervening years. All that is now wanted is for the demand for insulated fittings to widen and extend until *all* electrical fittings are so protected.

PROTECTION FOR TRAMCAR PASSENGERS.

Road Users Opposing the Manchester Proposal.

One of the clauses of the Manchester Corporation Bill, to be promoted in Parliament, would require vehicles to halt when approaching a tramcar which has pulled up at a stopping place. The clause reads:

"When any tramcar is standing at a tramway stopping place in the city of which the position is shown by a notice sign or other indication, the driver of any vehicle who intends to pass on the near side of such tramcar shall draw up before arriving at such stopping place, and shall not pass such tramcar until the carriageway is clear of passengers entering or leaving the car."

It is proposed that the penalty for non-compliance shall not exceed £5.

The promoters of the Bill are already encountering serious opposition. It is contended that the clause would greatly slow down traffic in the city, entail loss of time, and increase congestion. Organised opposition is being arranged by the Manchester Committee of Road Users, which is seeking to impress upon the City Council the inadvisability of retaining the clause in the Bill. Previous efforts of the City Council to have a similar clause inserted in earlier measures failed when it came before the committees of the Legislature, being either opposed by the motor organisations or refused on the ground that the proposal was one for national legislation.

Digitized by Google

UNDERGROUND RAILWAY SAFETY DEVICES.

EXHIBITION AT CHARING CROSS STATION.

The booking-hall at Charing Cross Underground Station seems likely to qualify for a permanent position among London's " places of interest." Previous displays on this site have given rise to very considerable interest, but the exhibit of Signalling, Safety and Other Devices now staged there makes an appeal which is by no means confined to the mechanically-and curious-minded.

With the aid of a working model railway, about 60 ft. in length, laid with double track, stations, automatic cross-overs and fully signalled, the safety measures provided for the control of underground trains are realistically demonstrated. The automatic signalling system is shown operating as in actual practice by means of miniature trains which are continuously running. Moreover, the miniature signals are operated by means of standard track relays placed alongside the model track in full view, as is the illuminated signal-cabin diagram. This section of the exhibit is one which, while quickening the interest of the technically-minded in the operation of the " Underground," is of a very reassuring nature to thousands of daily travellers on the system. There is also a full-size point lay-out, with all the devices used in actual practice, arranged for operation from a two-lever signal frame. A trolley fitted with a trip-cock, placed upon the track, demonstrates the action of the " Train Stop."

The exhibit includes a short length of tunnel telegraph line, arranged to operate a full-size circuit-breaker, with telephone for use by the train crew in case of emergency. There is also staged, for operation by anyone interested, a train describer showing how descriptions are stored for ultimate use on the platform indicators. In addition there is an upper-quadrant three-position signal, lower-quadrant two-position signal, fog-repeater signal, various types of tunnel and daylight colour-lamp signals and numerous examples of the devices by means of which the intensive " Underground " traffic is operated with such a wonderful degree of efficiency and safety.

Some idea of the frequency of trains and the lever movements necessitated by them is given by means of graphs which show, for instance, that at Kennington Signal Cabin 1,610 trains per day are dealt with, by means of 32 working levers. At this cabin the number of lever operations reaches the daily total of 13,159.

An explanatory leaflet has been prepared for general distribution and members of the " Underground " staff are on duty to conduct visitors and demonstrate the working of the apparatus.

ILLUMINATED DIAGRAMS ARE INSTALLED IN SIGNAL CABINS TO INDICATE TO THE SIGNALMAN THE POSITION OF ALL TRAINS IN THE AREA CONTROLLED

Underground Railway Exhibition of Signalling at Charing Cross Station.

LONDON'S RAILWAY FIGURES.

Figures relating to railway services show that in Greater London alone last year the railways carried 929,521,900. The number of passengers using main line terminal stations in London each day, together with the Underground railway, amount to a total of nearly 3,000,000. There are 580 passenger stations within a ten-mile radius of Charing Cross. These are divided up as follow: G.W.R., 22; L.N.E.R., 98; L.M.S., 75; S.R., 200; Metropolitan, 60; Underground, 125. The Metropolitan Railway trains make about 1,000,000 train journeys annually; upwards of 1,500 trains are handled daily at Baker-Street alone.

Digitized by Google

TRAMCAR PROGRESS IN 1929.

A Notable Period for New Construction and for Re-Conditioning.

The outstanding feature of tramway progress in this country during the past twelve months has been the new construction and re-conditioning of tramcars. In any review of this work, reference should first be made to the progress in the re-conditioning to the Pullman standard of comfort of the whole of the London County Council's fleet of nearly 1,800 cars. This work has extended over four years and has had remarkable financial results. If any undertaking is still in doubt as to the advisability of modernising its rolling stock, that fear should be removed by a consideration of the results achieved for two years in succession by the London County Council. Provided a car with a covered top-deck has motors of sufficient power to maintain its place in the general speeding up of traffic, which has followed on the adoption of pneumatic tyres in provincial omnibus services, there should be no room for doubting that the London results can be achieved elsewhere. For the thirty-nine weeks to January 1, 1930, the L.C.C. traffic return showed an increase of £35,908 over the full financial year of 1928–29. That augmentation of receipts is the more noteworthy because in the similar period of 1928–29 there was an increase of £126,777.

These increases have been achieved despite the fact that the Pullman car accommodates 73 seated passengers, as compared with 78 on the original car. A further consideration is that omnibus competition has become more intense now that the majority of omnibuses have covered top-decks. By June, 1930, it is expected that 1,400 cars will have been re-conditioned at a cost of under £300,000.

Improved London Municipal Cars.

To the London County Council belongs the distinction of having given the largest order for new cars, 150 of which were ordered on July 30, that total exceeding by 25 the record of 125 which the Council had held since 1921, when two 60 H.P. motors were introduced per car to give greater speed and acceleration. For the 150 ordered in July last the contractors for the double-deck bodies are Hurst, Nelson & Co., Ltd., and the English Electric Co., Ltd.; for the bogie trucks, the Electro-Mechanical Brake Co., Ltd.; for the electrical equipments, the English Electric Co., and the Metropolitan-Vickers Electrical Co., Ltd., and for magnetic track and wheel brake equipment, Estler Bros., Ltd., the total expenditure being £452,002.

Further enterprise by the London County Council was shown in April, when two experimental Pullman bogie cars, constructed by the Tramway department, were placed in service on routes where there are severe gradients, notably at East Dulwich. These cars are known as the H.R. (hilly routes) type, and it is claimed that the double bogies have a tractive capacity of 100 per cent. Instead of having the drive only on the large wheels of each truck, all four wheels are now of equal size and each is driven, each truck having two motors. This arrangement enables a car to be driven in safety at adequate speeds on gradients of approximately 1 ft. in 10 ft. A lengthened wheel-base gives increased seating and steadiness of running, the latter being further added to by additional springs between the body and the wheels. There is also an increase of 5 in. in the width of the interior of the top saloon, enabling wider seats to be installed.

Creditable as the foregoing achievements are to the L.C.C. and the tramways management, these improvements do not exhaust the enterprise of the department. This year the Charlton works are to construct an experimental bogie car with enclosed vestibule ends, still more comfortable seating and improved lighting. The appearance of the car is to be improved by coning the roof cover and using curved surfaces where convenient. It is to be hoped that the experiment will also include the alteration of the staircases and the provision of larger platforms, so that the car can be worked on the rear entrance and front exit plan, thereby reducing the journey time by lessening the intervals at the halts.

With the closing of the subway from the Embankment to Southampton Row this month for enlargement, the fifty-five single-deck cars are to be converted to double-deck vehicles of the Pullman type. Hitherto, the single-deck cars have not proved profitable.

Other municipal tramways in the Metropolitan area have not been backward. Croydon Corporation has put in service many new cars which had to be obtained for the through running to the Victoria Embankment. These were constructed by Hurst, Nelson & Co., Ltd., and are first-class examples of the Pullman type. West Ham Corporation, which claims to have originated Pullman cars of new construction in London, has in operation ten more of these cars showing further improvements, including vestibule ends and transverse seats of the tilting type in both saloons. Hurst, Nelson & Co. provided the trucks and the Brush Electrical Engineering Co. the bodies. Two complete bogie cars have also been produced at the depot.

Notable Cars of the London Companies.

Probably no country can show such greatly improved cars as the two double-deck vehicles that have been produced during the past year by the tramway companies associated with the London Underground Railway Group. The two vehicles are the outcome of several years' rivalry between the engineers of the tramway and the omnibus departments to produce what each conceived to be the best type of tramcar body and truck; and it is a gratifying testimony to the practicability and attractiveness of the rear entrance and front exit design to find that it has been embodied in these four new vehicles. For many years we have urged upon tramway operators the great advantage to be derived from the adoption of this type of car, and the slowness with which the idea has been adopted is unexplicable. If tramway owners exhibited as great energy and resource in the search for new means of improving their cars and services as has been shown by those more especially concerned in the development of motor omnibus service, the use of exit and entrance doors at opposite ends of tramway cars would long since have become general. We are well aware of the difficulties that have been encountered, but these difficulties would not have proved so formidable had a little more vigour been applied to their removal. Experience of the working of each car proves that the system saves considerable confusion at the busy points. Two of the new cars mentioned were produced last year, one in April and the other in November, and they have since been in service on the lines of the Metropolitan Electric Tramways. Full and illustrated descriptions of them appeared in our issue of April 18 and November 21, but their leading features may again be mentioned. The builders were the Union Construction Co., of Feltham, who construct the rolling stock of the London Underground Railways. It was to secure a type of car most suited to present-day conditions that the tramways management embarked upon an enterprise which, for sustained effort and thoroughness, is unique. Even now they have not written *finis* to their efforts. Although the several vehicles have proved popular and efficient, it is intended to embody the best points of each in a future design for a standard car.

Necessarily a number of such points are common to both cars—each is a super-Pullman—but there are two features in which the vehicles differ. Specially rapid lifting and discharge of passengers at busy points is a feature of the April (No. 320) car. For this purpose the lobby formed at each enclosed end has an area of 36 sq. ft. The November, or No. 330, car has lobbies of 30 sq. ft. This smaller area is due to a desire to thoroughly try out a "pay-as-you-pass" ticket machine, operated by a seated conductor. Each car has a wide, double entrance, and the staircases being sited well inside the lobby, parallel with the other side of the car, there is no risk of a passenger falling down the staircases and on to the track, as is possible with some ordinary double-deck cars.

Externally, the two cars are things of beauty when compared with ordinary cars. Each has streamline effects, and the covered top-decks slope inward to a curved roof. The overall height—14 ft. 10 in.—of Car 320 is 8 in. less than for the old type, while Car 330 is 4½ in. lower than the latter. Due to a wise concession by the licensing authority, each car has wider saloons, enabling double transverse and upholstered seats to be installed on each side of the gangway of the lower saloon, instead of one side having single seats. As usual, the top saloons have double seats on each side, but in consequence of the new and safe positions of the staircases, there are no partitions and no door (with all their necessary glass) to obstruct the view. Compartments for the motormen project from each platform, keeping them entirely out of the way of the passengers, and a seat is provided. Safety glass is used for the five windows of the motorman's compartment (two being movable) and also for the lobbies and the end lights of the top saloons. All the doors are mechanically-operated by the motorman. Each car has a low-loading level and the provision of two trolley arms to each car makes for the safety of passengers and conductors. Another safety provision is the automatic lighting of the step from the road to the lobby. Each car has four motors, and the brakes operate on all the eight wheels. On Car 330 the hand-brake and the magnetic track-brake are supplemented by an air-brake, which is found to lessen rail wear and to be less likely to cause skidding. While No. 320 seats 64 passengers, No. 330 has accommodation for 78 on the improved tilting seats. Car 320 weighs 10¾ tons, or 4 cwt. more than a two-motor old-type of car. The weight of Car 330 is 17 tons. Two electric heaters are provided.

Provincial Progress.

Numerous provincial tramways are now operating a number of new or re-conditioned cars, and when these have been given an adequate trial orders of some importance may be expected to be placed, either for complete vehicles or for up-to-date equipment

Digitized by Google

and components. Subject to a grant from the Unemployment Grants Committee, Leeds Corporation propose to reconstruct 150 cars. At Glasgow all the cars worth re-conditioning are to be fitted with high-power motors to give greater speed, and will have electric heating and improved lighting. Southend-on-Sea residents have welcomed the re-conditioning of the tramcars effected by Mr. Ronald Fearnley, the new general manager. Progress has been made at Birmingham with the scheme of making the Corporation tramcars "the best in the country." Edinburgh and Birkenhead have built experimental cars.

A most interesting development is a new type of single-deck car for high speed, designed by Mr. Priestly, general manager of the Liverpool Corporation undertaking and built by the English Electric Co. at Preston, as described and illustrated in this journal of October 17. Chief of the objects in view was the desire for a car to suit present and future requirements of city transport, including higher speed, the latter need being particularly important in view of the fact that the city has a fair mileage of tramways laid on their own right of way. Other features aimed at are improved springing, reduction of noise, low loading and reduced cost of maintenance. The car is intended for operation with coupled cars, the controllers being arranged so that it is possible to drive the two-car unit from either end of the unit, or alternatively to drive each car separately from either end.

To attain as high a speed as possible on curves, the body is carried on two bogie trucks. The driving equipment consists of two D.K.120 motors, each of 60 H.P. at 500 volts, and as all four axles are driving axles the whole weight of the car is available for adhesion and maximum acceleration can be obtained. Each motor forms an integral part of its truck. The motor, which is mounted longitudinally, has a pinion at each end, driving on to a spiral bevel gear-wheel, which is mounted on a grill surrounding each axle. The grill is mounted on larger roller bearings secured in a cast-steel casing to the main frame of the motor, so that the gears are always correctly in mesh. Similarly, in order to retain this correct meshing, the armature of the motor is also mounted on roller bearings. Therefore, as no wear takes place in the bearings, the correct pitch line will be maintained between the pinion and gear, ensuring smooth and silent operation. At each end of the grill a flexible drive transmits the power to the driving wheels, allowing relative movement between the grill and the axle in all directions, without setting up additional strains in any part of the driving gear. The truck, which really consists of the motor, together with the two end-casings, is supported on eight coil-springs, which are mounted on cast-steel caps containing the special anti-friction bronze axle bearings. This means that the only unsprung weight on the whole arrangement is that of the wheels and axles, together with the axle-bearings. This is a most important feature when considering track maintenance, as the hammer effect on the rails is reduced to the minimum. The interior of the vehicle has gained for it the title of the super-luxury car.

Aberdeen Corporation tramways, during the last two months of the year, placed in service twelve double-deck cars, with luxury-fitted saloons, on the Peckham P.35 type trucks and having combined air and electro-mechanical track-brakes. These cars were built by the Brush Electrical Engineering Co. to the special requirements of the general manager, Mr. J. L. Gunn.

Bow-Collectors at Birmingham—Manchester's Car Programme.

In addition to achieving progress with the scheme of rendering the Birmingham cars "the best in the country," the tramways department of that city has inaugurated bow-collector working, in place of the trolley-arm and wheel, on seventy cars. The work was fully described in an illustrated article in this journal of May 16.

Another Birmingham development is to be seen in the use of the Maley-Taunton air magnetic brakes on thirty cars with more powerful motors, which were placed in services in the first half of the year. The trucks the "Burnley maximum traction type"—were supplied by the makers of the brake equipment, Maley & Taunton, Ltd., of Wednesbury. Quite recently the tramways department has put in service the splendid car which is described and illustrated elsewhere in this issue.

Acting on advice of the general manager, Manchester Tramways Committee are curtailing the normal car-building and track programme until certain features in the financial position become clarified. In April, Mr. Pilcher submitted a programme which will curtail the policy of building twenty-eight bogie cars each year and of scrapping an equal number of single-truck cars. His examination of the traffic conditions of the city and of neighbouring localities led the general manager to decide that the department still requires to run a large number of the smaller type of car, in particular where inter-running arrangements exist and also on city routes where the traffic conditions are more favourable to the single-truck car. As he has demonstrated, both in Edinburgh and in Manchester, the single-truck car can be altered to operate with much less "jazzing" and noise. The new type would seat 61 persons and would be 2 in. wider. Front exit doors would be provided for use in relieving congestion at busy points. Air-brakes would be added. At a cost of £1,800 each, Mr. Pilcher suggested the construction of forty single-truck cars.

Swansea and Mumbles Railway Electrification.

In April the South Wales Transport Co. celebrated the electrification of the Swansea and Mumbles Railway, which is 5.38 miles in length and has a 4 ft. 8½ in. gauge, the track being largely on the company's right-of-way. The twelve new cars are the largest in this country, and when the pleasure traffic to the Mumbles pier and back calls for it, they are worked as two-car trains. Each car accommodates 106 passengers, mostly on two lines of upholstered double transverse seats on each deck. As the cars have a width of 7 ft. 6 in., as compared with the 6 ft. 10 in. of the ordinary street tramcar, the seats afford ample comfort. They were made to the requirements of the British Electrical Federation by G. D. Peters & Co. The cars were supplied by the Brush Electrical Engineering Co. and as they are permanently operated from the near-side, the passengers enter at the rear and leave at the front. The doors are opened and closed mechanically by a lever manipulated by the driver. Each car has two 60 H.P. British Thomson-Houston motors, that company also supplying the air-brakes of the straight air-with-emergency-feature type. The equipment for a fully automatically-controlled sub-station was supplied by the Metropolitan-Vickers Electrical Co.

Space does not permit of more than mention of the important paper on "The Modern Tramcar" read at the Sheffield Congress of the Tramways and Light Railways Association by Mr. G. H. Fletcher, chief engineer, traction motor department, Metropolitan-Vickers Electrical Co. The paper and the interesting discussion thereon appeared in the issue of this journal for July 18.

In the issue of January 17 was published a contributed article showing the progress made in fitting roller bearings to cars on over thirty tramway undertakings in this country. An occasional correspondent on April 18 discussed the question of bogie-truck cars in narrow streets and in Glasgow in particular. An interesting contention was that any modernisation programme aiming at the highest operating efficiency must include four motors on equal wheel bogies.

THE MANUAL OF ELECTRICAL UNDERTAKINGS.

32nd Annual Volume. Data corrected to September, 1929. Accounts for 1928-29. 2,000 pages. Demy 8vo, with 29 Map Supplements. Electrical Press, Ltd., 13–16, Fisher Street, London, W.C.1. 35s. net.

The new volume of "Garcke" just issued proves that the capacity of the editor to provide information is by no means exhausted. Two new features which have been included in the thirty-second annual volume have considerably widened the scope of the work. The first consists of additions which have been made to the "Progress Section," in the form of a brief record of particulars of new generating stations under construction or for which sanction has been granted. The second new feature consists of an amplification of the "Contractors' Section," to which has been added practically every town and urban area where supply is available, together with the names of the supply undertakings concerned. The comprehensive nature of this latter section will be widely appreciated.

All the familiar and well-known features of the Manual are retained and the editor is to be congratulated upon having included, in a single volume, such a mass of data, all of which has been exhaustively revised and corrected to September, 1929; while the accounts of the various undertakings included in the edition are the latest available. Every branch of the electrical industry in the United Kingdom and the British Dominions and possessions is embraced, and authoritative financial, technical, commercial and general particulars of 5,500 undertakings are provided. In addition, the names and addresses of more than 20,000 directors and officials are included. Twenty-nine excellent maps show the electricity supply areas and tramway and railway systems throughout the country, as well as the complete scheme of the main "Grid" transmission lines.

The usual arrangement of the book has been adhered to. Early pages are devoted to progress of the year, statistical, parliamentary and general information. Then follow five sections dealing with electric supply, traction, telegraph, telephone and manufacturing undertakings, as to all of which there is a wealth of detailed information.

"Garcke's Manual" is so widely known and appreciated that the present issue is certain of a prominent position on the reference shelves of all holding responsible position in the electrical industry.

Digitized by Google

THE LAST "GATE" TUBE-TRAIN PASSES.

UNDERGROUND ROLLING STOCK PROGRAMME COMPLETED.

The rolling stock improvement programme, embarked upon three years ago by the Underground Electric Railways of London group, has now reached completion, and the dawn of 1930 saw the passing of the last of the iron-gate tube trains to be run. Embarking upon its final journey from Queen's Park at 12.15 a.m. on January 1, this train terminated its useful life at Elephant and Castle after a career in the course of which it has covered over 1,000,000 car miles.

So gradually have the improvements come about that comparison of the tube coaches used three years ago with those in service to-day provides an interesting study, as will be seen from the accompanying illustrations of old and new "Bakerloo" stock. Not the least of the benefits which have accrued to the travelling public as a result of the programme now completed is the improved average speed, which now reaches from 22 to 25 miles per hour.

One of the Original "Bakerloo" Cars.

This has been accomplished largely by provision of the wide centre doors, which have eliminated the congestion which took place at the ends of the old cars, and the more powerful motors with which the new trains are equipped.

It is significant that the higher average speeds which have been achieved coincide with a notable diminution in noise—one of the most difficult factors to deal with when increased speed is sought. The adoption of air-operated doors in place of the metal gates and wooden end-doors and the elimination of rattle from windows

The New Type of Tube Car.

and ventilators have gone far towards solution of the noise problem. The measure of safety for passengers is greatly enlarged by the absence of woodwork which, although subjected to "fireproofing" treatment, still retained its smoke-producing properties. Improved springing and bogie-truck construction are responsible for much smoother running, while the improved lighting, cushioned seats, and the hygienic type of construction adopted have greatly added to the amenities of travelling.

Experience gained from experiments on the Piccadilly Railway in 1920, with cars of differing design enabled an entirely new type of rolling stock to be provided for the extensions to Edgware and Morden, and led to the introduction of the replacement programme now completed, under which 191 new trains, composed of 1,219 individual coaches, have been put into service at a cost of nearly £5,000,000.

TRAMWAY AND LIGHT RAILWAY NOTES.

BRADFORD.

TROLLEY OMNIBUSES IN LIEU OF TRACK RECONSTRUCTION.

A report by the Bradford Tramways manager states that the cost of relaying the worn-out track to Idle would be double that of equipping this route for trolley omnibus operation as proposed by the Committee. It has been decided to convert this tramway to the railless system as soon as possible.

DEARNE DISTRICT.

A MUNICIPAL AND COMPANY AGREEMENT IMPERILLED.

There is now no prospect of the Dearne District Traction Bill going forward in the present session of Parliament, owing to the failure of one of the four authorities which are promoting the Bill jointly with the Yorkshire Traction Company to produce the necessary statutory majority. The object of the Bill was chiefly to regularise an agreement with the Traction Company which has been in operation since April. The agreement amounted to an amalgamation between the company and the Light Railway Committee with regard to the operation of travelling services in the "transport area"—the area served by the tramway. The Bill was also intended to put an end to competition, which has proved disastrous to at least two transport undertakings and been a burden to four communities of ratepayers.

EDINBURGH.

TRAMCAR HEATING—USED TICKET RECEPTACLES.

The Transport Committee has recommended the fitting of fifty tramcars with electric heaters in the upper saloons, the general manager, Mr. Fitzpayne, having reported that six cars had already been fitted with these heaters with great success. Owing to the difficulty in securing compliance with the request to deposit used tickets in the boxes provided for the purpose, a large cylindrical wire basket now stands on the platforms of Edinburgh tramcars in addition to the boxes.

GLASGOW.

THE MONOPOLY DEMAND—A VISIT TO BERLIN—IMPROVED CARS AND INCREASED RECEIPTS—MANAGER'S MESSAGE TO THE STAFF.

During a discussion by Glasgow Corporation of the Parliamentary Bill which asks for monopoly powers over transport in the area of the municipal tramways within and without the city, Bailie Dollan, convener of the Transport Committee, said that the Council spent a million pounds in purchasing the Paisley and the Airdrie and Coatbridge tramways. They had also spent £480,000 on the new Glasgow-Edinburgh road and the Anniesland-Duntocher road. Could anybody offer serious objection to the Corporation having the right to any benefit that might accrue from the running of transport on those routes? The convener, together with Mr. L. Mackinnon, the general manager, and Mr. R. Smith, the traffic superintendent, have been chosen to visit Berlin to study the transport system in the German capital. Their investigation will include the whole of the tramways, omnibus, subway and railway systems of the city. The Berlin system consists of a combination of tramway, omnibus and underground railway services with a share capital of 40 million marks which is entirely in the hands of the municipality. This arrangement has eliminated all competition, and the profits are employed in improvements and extensions in the services. The popularity of the reconditioned tramcars in Glasgow is mentioned as one cause of the marked improvement in the tramway finances during the first half of the financial year. Tramway, omnibus and subway passengers increased by 15,000,000, while the revenue is up £88,129. In a Christmas message to the staff the general manager, observing that the interim report of the Special Committee on Education for Salesmanship had been issued, made the comment that of the nine qualifications suggested as being necessary for the perfect salesman, five could aptly be applied to the transport employee. These five are, he says: "Good character, attractive personality, capacity for making friends, knowledge of human nature and the confidence of his firm."

LEEDS.

NEW SHELTERS AT BRIGGATE—AN ADVOCATE OF "FREE RIDES FOR ALL."

The Tramways Committee has accepted the tender of the Star Architectural Iron Works, Ltd., at £750, for the erection of new shelters and barriers for passengers at Briggate, where an accident recently occurred. At a meeting of the City Council on January 2,

Digitized by Google

in a discussion on the suggestion of the Tramways Committee that passes should be issued to all members of the Corporation entitling them to ride free in the tramcars and omnibuses, Councillor Milner supported the proposal. He looked forward to the day when riding free in tramcars would be enjoyed by all. An amendment that the Committee's proposal should be referred back was defeated.

LIVERPOOL.

TROLLEY OMNIBUS POWERS TO BE OBTAINED—ADDITIONS TO THE OMNIBUS FLEET.

The Tramways Committee, reporting on the suggested adoption of trolley omnibuses, state that at present the city has no Parliamentary powers to operate such vehicles, but they are seeking powers in the Corporation's new Bill. The Committee has recommended the Council to make application to the Minister of Transport for sanction for the borrowing of £72,000 for the provision of additional omnibuses.

MANCHESTER.

UNDERGROUND RAILWAY SCHEME.

A Manchester Corporation committee has prepared a report, which is to be presented this month, recommending the construction of an underground railway in the city and district. Further recommendations are that the adjoining city of Salford be asked to take joint action, and that the two Corporations should approach the Government with a view to securing financial aid under the plan for promoting employment. The scheme comprises an inner circle railway to connect the five principal railway stations and also the congested surface traffic areas of Piccadilly and New Cross. From this circular route five radial lines will be constructed to Didsbury, Levenshulme, Openshaw, Newton Heath, and Cheetham Hill. The work will take ten years to complete, and by that time it is estimated that the population of Manchester alone will be 950,000, on which total the undertaking is expected to prove remunerative. It is proposed to enlarge the diameter of the tube to permit the carrying of goods, with a consequent relief to the congestion of the streets. Railway officials in Manchester are stated to have lately been in communication with the committee.

ROTHERHAM.

AWARDS FOR ECONOMY.

Employees of Rotherham Corporation who have operated their cars and omnibuses with the least amount of current and petrol are to receive special grants. The sum of £5 and two prizes of 50s. each are to be paid to the first three men on the tramcar aggregate and prizes of £3, £2 and £1 for the first three men on the trolley omnibuses, while £10 is to be divided among the first three petrol omnibus drivers. The chairman and transport manager will make the awards.

SUNDERLAND.

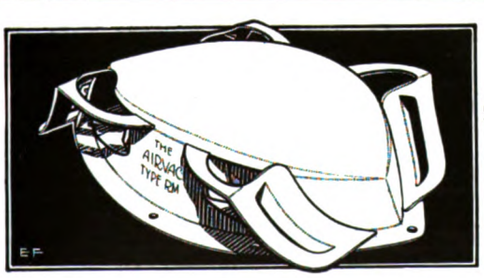
TRACK RENEWAL.

Foreshadowing heavy expenditure on track renewal, Mr. C. A. Hopkins, general manager of Sunderland Corporation Tramways, states that he hopes the cost of about £75,000 will be met out of revenue, spread over two or three years.

WALLASEY.

INQUIRY INTO THE FINANCIAL POSITION.

A sub-committee of Wallasey Tramways Committee has been appointed to investigate and make recommendations as to the financial situation of the undertaking, and to advise on the question of a revision of fares on the unprofitable routes or the substitution of omnibuses.



Positive and Balanced Ventilation providing correct rate of Air Change at all speeds, irrespective of weather conditions, for every class of Closed Vehicle, large or small, for road or rail, at home or abroad.

AIRVAC VENTILATORS
Honeypot Works, DARLINGTON

PERSONAL.

Mr. Cain has been appointed Minister of Railways in the Victorian Government.

Sir Gilbert Bale has been re-elected president of the British Engineers' Association for the year 1929-30.

Mr. Archibald Page, chief engineer and manager, Central Electricity Board, has received the honour of knighthood.

Sir Wm. Middlebrook, formerly chairman of the Local Legislation Committee of the House of Commons, has been made a baronet.

Mr. William Simons, general manager of the Cardiff and Dowlais works of Guest & Nettlefolds, Ltd., has been elected a director.

Mr. Alfred Dryland, M.Inst.CE., county engineer of Middlesex, has received the honour of C.B.E. in the Order of the British Empire.

Sir Percy E. Bates has been elected director of the Great Western Railway Company in succession to the late Captain F. Brian Bibby.

Mr. T. H. U. Aldridge, vice-president and general manager of the Shanghai Power Co., expects to be in England in the early spring.

Ald. Isaac Mack, of Bootle, has retired from the position as chairman of the Watch Committee, which he held for forty years continuously.

Mr. R. W. Frost has been appointed works manager of Strachans (Acton), Ltd., the coachbuilders. Mr. Frost was formerly manager of the London Improved Motor Co.

Mr. J. M. Kennedy, of Messrs. Kennedy & Donkin, has been retained to advise the Government of Northern Ireland on matters connected with general electrical development.

Mr. E. F. Gait, formerly assistant manager to Stalybridge, Hyde, Mossley and Dukinfield Tramways and Electricity Board, has been appointed assistant transport manager to Durban Corporation Tramways.

Mr. N. A. Scurrah, technical assistant, has been recommended by the Bradford Tramways Committee for appointment as works superintendent in the tramways department at a salary of £400 per annum.

Mr. G. H. Loftus Allen, advertising and publicity officer, London, Midland & Scottish Railway, has been appointed chairman of the British Railways Advertising and Publicity Relations Committee for the year 1930.

Mr. J. Y. Shaw, over 30 years rolling stock superintendent of the Manx Electric Railway Co., Douglas, has retired. The directors have presented him with a cheque, and the staff with an engraved gold hunter watch.

Mr. Chas. Furness, electrical engineer and transport manager of Blackpool Corporation, has been re-elected president of the Blackpool and District branch of the National Association of Local Government Officers.

Mr. Arthur B. Cane, secretary of the Railway Companies' Association, retired on December 31, and **Mr. G. Cole Deacon,** assistant solicitor of the London, Midland & Scottish Railway, has been appointed to succeed him.

Mr. A. C. Johnson has been appointed borough electrical engineer of Southend-on-Sea as from October 1, at a salary of £1,000 per annum for the two years ending September 30, 1931, thence increasing by two increments of £100 to £1,200.

Mr. A. Dagget, traffic superintendent, Leeds Corporation Tramways, is shortly to retire. At a recent meeting, the Committee expressed their appreciation of his long and valuable service, and the hope that he would enjoy a happy retirement.

Mr. R. H. Chattock, who has been chief executive officer of the Birmingham Corporation Electricity Department for 26 years, has retired. **Mr. Frank Forrest,** chief assistant engineer, has been appointed as his successor.

Mr. Charles Challenger, director and late manager of the Bristol Tramways and Carriage Company, Ltd., has been elected a Fellow of the American Geographical Society. Mr. Challenger is the author of a work entitled "The Cabots' Discovery of America."

Mr. D. R. Walters, F.C.I.S., who returned from Australia last April, after having been associated four years with A.E.C. (Australia) Ltd., of Sydney, has been appointed secretary and accountant of Four-Wheel Drive Motors, Ltd., and Hardy Rail Motors, Ltd.

Mr. W. S. Naylor, who has been appointed chairman of the Board of the Chloride Electrical Storage Co., Ltd., in succession to the late Mr. W. Bannister, was appointed assistant manager in 1902, and four years later became general manager. In 1921 Mr. Naylor joined the board of directors, and for 27 years he has been in the service of the company.

Ex-Alderman C. Higham, who recently retired from the chairmanship of Blackburn Tramways Committee and resigned from the Council of the Municipal Tramways and Transport Association, has been elected an honorary member of the Association in recognition of his important services. Mr. Higham was president of the Association in 1924-25.

Digitized by Google

Mr. Arthur Ponsonby, M.P., Parliamentary Secretary to the Ministry of Transport, has been made a peer and will take the title of Lord Ponsonby of Shulebred. Before he succeeded Earl Russell as Parliamentary Secretary, Mr. Ponsonby was private secretary to the Minister of Transport. His elevation creates a vacancy in the Brightside division of Sheffield.

Mr. Charles Furness, electrical engineer and tramway manager of Blackpool, was presented on January 3 with a George I walnut tallboy from the members of the Town Council upon the occasion of his recent marriage. The chairman, Councillor G. W. Gath, in making the presentatoon, said that Mr. Furness was a man they all appreciated from personal and business standpoints.

Mr. J. F. Richards, the new general manager of Oldham Corporation Tramways, gained his early experience with the Metropolitan Electric Tramways, and subsequently became assistant general manager to West Ham Corporation Tramways and technical assistant to the general manager at Belfast. While in Ireland he was appointed rolling stock superintendent at Oldham.

Forthcoming Retirements.—Several departmental heads in Lytham St. Annes Tramways Department are retiring. These include Mr. J. Partington, rolling stock superintendent (27 years' service), Mr. P. Partington, tramways electrical engineer (26 years), Mr. J. Walsh, storekeeper (26 years), Mr. T. Baron, permanent-way engineer (17 years), and Mr. J. Bowker, of the general office.

Alderman C. G. Field, chairman of Reading Corporation Tramways and Motors Committee, who was recently re-elected an Alderman, is the senior chairman of municipal tramways committees. He was appointed chairman at Reading in November, 1906, and has held the position ever since. In 1893–4 and 1912–13, and the following year, he was Mayor. For many years he has been a conservator of the River Thames and is now vice-chairman of the Thames Conservancy.

Mr. Cyril Dennis, of W. B. Dick & Co., Ltd., in a series of articles on his recent visit to Russia, contributed to the "Western Mail," Cardiff, says in referring to possibilities of trade: It would appear that "nothing short of a calamity will arouse in Russia the necessary realisation" of the part which that nation must play in establishing the confidence necessary for the foundation of business relations. He feels that the Communists are sincere in the belief that "their system is the solution of all ills," and pleads for a sympathetic view of "a people who hug a great delusion."

Burnley Tramway Management.—At a meeting of the Burnley Tramways and Omnibus Committee on January 2, applications for the position of manager, which will become vacant in March next, through the retirement of Mr. Henry Mozley, were reduced to 13, but further inquiries were not restricted to the candidates whose names are included in the following list: Charles E. Crossley, Chesterfield; Frank H. Crossley, Ashton-under-Lyne; Alfred S. Handford, Bristol; A. A. Jackson, Nottingham; E. H. Mason, Manchester; Sydney Mitchell, Newcastle; R. H. Nuttall, Luton; Cyril P. Paige, Wakefield; Arthur E. Scorey, Southampton; H. P. Sharpe, Rotherham; Charles H. Stafford, Reading; Charles Symon, Aberdeen; I. A. Wild, Lincoln.

Mr. Alfred Baker, general manager of the Birmingham Corporation Tramways, left estate valued at £17,185.

The death is announced of **Lieut.-Col. Montagu Cradock,** a director of the Metropolitan-Vickers Electrical Company. He was 70 years of age.

Mr. Thomas Quinn, whose death occurred a few days before Christmas, had been identified with Dublin tramways for 44 years. At the time of his decease he occupied the position of chief storekeeper.

Memorial to Mr. J. C. Little.—At St. Peter's Church, Wallsend, on January 5, the Rector, Canon C. E. Osborne, unveiled and dedicated a tablet in carved oak in memory of Mr. John Charles Little, who was general manager and secretary of the Tyneside Tramways and Tramroads Co., and was identified with many social organisations in the town and with the Boy Scout movement. The Church schools are to be enlarged at a cost of £3,000 as a memorial to Mr. Little.

Dr. S. Z. de Ferranti died at Zurich, Switzerland, on January 13, at the age of 65. He was educated at University College, London, and at the age of 18 patented the Ferranti alternator. In 1883 he started the first high-tension electric supply at the Grosvenor Gallery, Bond Street. Dr. Ferranti was head of Ferranti, Ltd., of Hollingwood, and in 1910 and 1911 he was President of the Institution of Electrical Engineers, which, in 1924, conferred upon him its highest award, the Faraday medal.

COMMERCIAL AND TECHNICAL PHOTOGRAPHERS

Specialists to the Motor, Tramway & Railway Industries.

EXPERT OPERATORS ALWAYS AVAILABLE.
CONTRACTS UNDERTAKEN IN ALL PARTS OF THE COUNTRY.

Photographic printing and enlarging, Post Cards, Calendars, etc.
Prices on application.

AIR PHOTOS OF FACTORIES, POWER PLANTS, TRAFFIC, etc.
PICTORIAL AIR VIEWS OF TOWNS IN STOCK FOR GUIDE BOOKS.

AEROFILMS LTD. *Tel:* COLINDALE 6183, 6184.
COLINDALE AVENUE, HENDON, LONDON, N.W.9

THE
Manchester Armature Repair Co. Ltd.
ELECTRICAL ENGINEERS
FORD LANE, PENDLETON, MANCHESTER

Contractors to Leading Tramway Authorities for
ARMATURE COILS
FIELD COILS
COMMUTATORS
For All Types of Tramway Motors

Telephone—**Pendleton 151** *Telegrams*—**"Rewinding Manchester"**

ESTABLISHED 1856
Contractors for more than Half a Century to the principal British, Indian, Colonial and Government Railways &c. &c.
TEARNE & SONS LTD.
BIRMINGHAM
TRANSFERS
For Tramcars, Railway Carriages, &c.
ARMS - MONOGRAMS - LETTERING
Every Description of Inside and Outside Ornamentation, Notices, etc.
Telephone—**Northern 1637** *Telegrams*—**"Tearne, Birmingham"**

Automatic and Curb Point Controllers
Tramway & Traffic Signals
Porcelain Insulators and Fittings

THE
FOREST CITY ELECTRIC CO., LTD.,
4, Longford Road, Stretford,
MANCHESTER.

Digitized by Google

Leather Upholstery

Unsurpassed for

Public Service Vehicles

---

1 Economy & Service.

Low cost and capacity to stand hard wear.

2 Clean & Sanitary.

There is nothing to equal it.

3 Appearance & Comfort.

Refined and cheerful.

JOHN T. HART & SONS,

Grange Road,

BERMONDSEY,

LONDON, S.E.

There is no better leather obtainable.

Write for patterns and quotations and all particulars.

CONTRACTS AND ORDERS.

Glasgow Transport Committee has accepted the tender of C. Raine & Son, Ltd., for dust extraction plant at Coplow Hill Works.

The English Steel Corporation, Ltd., Sheffield, are supplying 100 steel tyres to Bradford Tramways, at a price of £335 18s.

Bradford Tramways Committee has accepted the tender of Stewart & Lloyds, Ltd., for the supply of 100 steel tramway poles.

Siemens Electric Lamps have received a contract from the Booth Steamship Co., Ltd., for the supply of Siemens' electric lamps for twelve months.

The British Thomson-Houston Co., Ltd., has received a twelve months' contract from the Great Northern Railway (Ireland), for the supply of Mazda gas-filled electric lamps.

Rotherham Transport Committee has recommended acceptance of the tender of Callender's Cable and Construction Co., Ltd., for the supply of cable required for the Dalton trolley vehicle route.

Liverpool Tramways Committee has accepted the following tenders for special track work: Titan Trackwork Co., Ltd., £659; Hadfields, Ltd., £2,155; Edgar Allen & Co., Ltd., £626; Titan Trackwork Co., Ltd., £2,169.

The London Electric Railway has entrusted to G. D. Peters & Co., Ltd., of Windsor Works, Slough, the supply of electro-pneumatic door apparatus (National Pneumatic-Peters System) required for 53 passenger coaches in the 1929 programme.

Southend-on-Sea Council has accepted the following tenders:—Two 59-seat, low-loading trolley omnibuses (£4,760), English Electric Co., Ltd.; four sets of transverse seats for tramcars (£669), G. D. Peters & Co., Ltd.; tower wagon (£440), Tilling-Stevens Motors, Ltd.

The English Electric Co., Ltd., has been awarded the following contracts:—Twelve 750-k.v.a. 3-phase transformers, £3,348, Liverpool Power and Lighting Committee; sub-station switchgear, £6,338, Leeds Corporation; frequency changers and switchgear, Birmingham Corporation.

Airvac Ventilators, of Darlington, have received a repeat order for 150 Airvac ventilators for the Finland State Railways, and a repeat order from Beyer, Peacock & Co., Ltd., for 48 Airvacs, (type RM), which are to be fitted to the cab roofs of sixteen Beyer-Garratt locomotives, for the Bengal Nagpur Railway.

Glasgow Transport Committee has recommended the following tenders:—Brake levers for bogie cars, Kilmarnock Engineering Co., Ltd.; lead-covered cable, Hackbridge Cable Co., Ltd., and Standard Telephones and Cables, Ltd.; special work, Edgar Allen and Co., Ltd., Hadfields, Ltd., and Titan Trackwork, Ltd.

Rhodesia Railways, Ltd., have placed orders for the following rolling stock: eight enginemen's cabooses, Hurst, Nelson & Co.; six composite brake vans, Craven Railway Carriage Co.; twelve locomotives, the North British Locomotive Co., Ltd.; one hundred covered goods wagons, Birmingham Railway Carriage Co. The total value of the orders is £218,400.

London County Council has placed the following contracts:—Dorman, Long & Co., Ltd., supply of tramway rails and fishplates during 1930-31, £53,896; Frodingham Iron and Steel Co., Ltd., supply of tramway conductor rails during 1930-31, £7,232. Other tenderers were the Cargo Fleet Iron Co., Ltd., for rails and fishplates at £51,828, and Dorman, Long & Co., for conductor rails at £7,600.

Glasgow Transport Committee have re-affirmed their recommendation to accept the offer of John Thompson Water Tube Boilers, Ltd., Wolverhampton, amounting to £90,327 for the installation of six new boilers for the Pinkston power station of the tramways department. About a month ago the recommendation of the Committee was sent back to them by the Corporation in order that they might consult with experts regarding the specifications for the installation of the boilers. The report by experts was submitted at the meeting of the Committee.

Glasgow Accepts a German Tender.—Following a long debate, Glasgow City Council adopted a recommendation by the Transport Committee for acceptance of the tender, at £1,204, of Felten & Guilleaume, Germany, per W. F. Dennis & Co., London, for the supply of copper trolley wire. The lowest of four British tenders was £1,327 4s. Bailie Dollan, in moving the acceptance, said that the wire had been tested and its quality was the best. Four British firms had sent in exactly the same offer. The motion was carried by 39 votes to 37, four members abstaining.

RAILWAY DIVIDEND DATES.—The Great Western, London Midland and Scottish and the Southern Railways are expected to announce their dividends on February 12, the Underground Electric Railways of London Group on February 13, and the London and North-Eastern Railway on February 22.

Digitized by Google

TRAFFIC RETURNS.

Tramway and Omnibus Undertakings in the United Kingdom.

NAME OF COMPANY OR CORPORATION	1928-29. WEEKS ENDING					1929-30. WEEKS ENDING					AGGREGATE.		
	Dec. 15	Dec. 22	Dec. 29	Jan. 5	—	Dec. 14	Dec. 21	Dec. 28	Jan 4	—	Wks.	1929 30	Increase or Decrease
	£	£	£	£	£	£	£	£	£	£		£	£
Aberdeen Corporation	4,043	4,045	4,288	4,580	...	4,421	4,371	4,670	4,932	...	31½	158.133	+ 13.209
Ashton-under-Lyne Corporation ...	1,505	1,681	1,778	1,516	...	1.695	1,675	1,848	1,613	...	40	67,584	+ 3.258
Ayr Corporation	380	419	470	446	...	456	466	473	499	...	33	21.117	+ 1,247
Barrow Corporation	783	856	...	...	...	900	889	...	...	...	38	37.828	- 3,558
Belfast City	7,997	11,551	12,099	10,776	...	12,617	12,917	13,601	11,967	...	39½	488,576	+ 109,506
Birkenhead Corporation	4,370	4,988	4,621	4,486	...	4.750	4,967	4,982	4,734	...	40	210.676	+ 18,505
Birmingham Corporation	39,324	40,730	35,751	37,056	...	44,368	46,505	35,220	42,022	...	40	1,652.433	+ 110.309
Blackburn Corporation	1,920	1,877	2,222	1,972	...	2,143	2,117	2,429	2,198	...	...	80.369	— 1.308
Bradford Corporation	14,193	14 002	14,583	13,458	...	15,985	15,073	15,478	14,523	...	40	595,593	+ 31,314
Brighton Corporation	1,956	2,290	2,062	1,988	...	2,191	2,267	2,333	2,325	...	40	106,504	+ 2,008
Burnley Corporation	3,670	3,669	4,447	3,679	...	3,960	3,772	4,646	3,875	...	...	...	...
Burton-on-Trent Corporation	780	883	796	421	...	908	878	859	861	...	52	19,485	+ 2,785
Bury Corporation	2,374	2,552	2,740	2,453	...	2,773	2,709	2,964	2,932	...	40	103,272	- 319
Cardiff Corporation	7,063	7,752	7,213	7,201	...	7,944	8,149	8,079	8,026	...	39½	310,680	+ 4,713
Chatham and District	1,053	1,123	1,094	596	...	1,119	1,145	1,091	774	...	52	59,760	— 6,360
Chesterfield Corporation	1,867	2,256	1,825	1,883	...	2,082	2,121	2,272	2,095	...	40	79,589	+ 3,009
Colchester Corporation	466	521	489	439	...	609	633	637	596	...	41	22,902	+ 4,154
Colne Corporation	635	626	839	632	...	716	700	825	684	...	40	28,808	+ 152
Coventry Corporation	3,540	3,883	3,563	3,488	...	4,242	4,217	4,001	4,135	...	40	151,959	+ 19.946
Darlington Corporation	966	1,088	1,136	1,045	...	1,033	1,033	1,227	1,132	...	39½	40,020	+ 965
Derby Corporation	2,955	3,236	3,069	2,916	...	3,398	3,450	3,435	3,428	...	40	131 198	+ 9,578
Dover Corporation	312	382	334	326	...	369	371	396	390	...	40	16.668	+ 325
Dundee City	3,334	3,585	3,457	3,286	...	3,469	3,748	3 552	3,588	...	33½	117 864	+ 4 455
East Ham Corporation	2,212	2,355	2,207	2,146	...	2,485	2,521	2,317	2 358	...	39½	92,537	+ 4,066
Edinburgh Corporation	15,879	16,866	17,067	17,532	...	17,242	17,910	17,970	18,930	...	33½	606,474	+ 29,869
Exeter Corporation	765	806	895	823	...	810	835	867	861	...	40	34,547	+ 407
Glasgow Corporation	47,782	...	...	...	...	53,095	...	...	...	...	28	1,409.803	+ 88.986
Gloucester Corporation	518	523	606	512	...	672	678	760	700	...	39½	23.676	+ 1,407
Grimsby Corporation	1,289	1,474	1,312	1,316	...	1,507	1,604	1,575	1,576	...	40	58,563	+ 4,996
Halifax Corporation	...	4,200	4,348	3,883	...	..	5,799	4,734	5,140	...	40½	190.013	+ 12 752
Huddersfield Corporation	6.120	6,180	6,170	5,779	...	6,419	6,535	6,474	6,323	...	40	257,314	+ 2 653
Hull Corporation	7,415	7,840	7,524	7,480	...	7,944	7,913	8,114	8,028	...	40	299.729	+ 8,968
Ilford Corporation	1,484	1,658	1,424	1,442	...	1,589	1,603	1 520	1,545	..	39½	60,235	+ 955
Ipswich Corporation Trolley Buses ...	1,201	1,284	1,207	1,192	...	1,327	1,366	1,350	1,383	...	40	52,004	+ 3,460
Isle of Thanet	373	393	451	373	...	357	379	383	413	...	52½	45,723	— 1,996
Kilmarnock Corporation	422	459	485	487	...	505	495	540	585	...	33½	16,132	+ 1,012
Leeds Corporation	18,571	18,705	18,707	18,000	...	19,809	19,715	19,514	19,170	...	39½	785,465	+ 22.125
Leicester Corporation	8,118	8,615	7,430	7,746	...	8,853	8,940	8,644	8,537	...	40	339,239	+ 16,560
Lincoln Corporation Buses	857	984	947	889	...	896	916	1.048	1 004	...	40	37,372	+ 1,769
Liverpool Corporation	29,371	31.241	29,125	29,043	...	31,321	32,285	30,635	30,898	...	39½	1,209,067	- 16,607
London County Council	83,817	86,456	78,625	81,732	...	85 977	88,696	85,058	77,600	...	39½	3,305,057	+ 35,908
Luton Corporation	327	351	314	350	...	403	397	407	371	...	39½	16.237	+ 888
Maidstone Corporation	668	736	766	847	...	757	798	835	908	...	39½	32.624	+ 2.350
Manchester Corporation	38,313	39,686	36,361	36.939	...	40,893	40.371	38,400	39,353	...	40	1,602,136	+ 36.108
Middlesbrough Corporation	1 575	1,802	1,718	1,511	...	1,702	1,968	1,868	1,742	...	40½	67,404	+ 2,721
Newcastle-on-Tyne Corporation ...	10 975	11,670	11,248	10,972	...	11,197	11,943	11,890	11,494	...	40	480,300	+ 25,453
Newport Corporation	2,282	2,543	2,431	...	...	2,601	2,589	2,712	...	...	39	44.639	— 13,822
Northampton Corporation	1,724	1,840	1,949	1,742	...	1,811	1,947	2,020	1,894	...	39½	71.448	+ 676
Nottingham Corporation	8,947	9,001	8,747	8,741	...	9,941	10,088	9,464	9,595	...	39½	381.932	+ 12,699
Oldham Corporation	5,218	5,520	5,878	5,236	...	5,717	5,653	6,315	5,521	...	41	229,506	- 9,524
Plymouth Corporation	5,489	5,887	4,913	5,440	...	5,886	6,315	5,490	6,224	...	39½	232,473	+ 8,096
Portsmouth Corporation	5,305	5,724	5,043	5,393	...	5,797	5,941	5,303	5,801	...	40	262.819	+ 10,995
Preston Corporation	2,087	2,080	2,410	2,065	...	2,264	2,195	2,407	2,316	...	39½	88,438	+ 3,268
Rawtenstall Corporation	1,297	1 356	1,488	...	...	1,417	1,404	1,601	...	...	39	53.663	+ 7.0
Reading Corporation	2,340	2,538	2,777	2,320	...	2,566	2,665	2,894	2,576	...	40	98,285	+ 2,082
Rochdale Corporation	4,124	4,314	4,781	4,121	...	4,475	4,338	4,964	4,350	...	...	179,239	— 2,684
Rotherham Corporation	2,437	2,870	2,644	2,401	...	2,766	2,754	3,351	2 897	...	41	112,869	+ 8,951
Salford Corporation	10,515	10,991	10,169	10,493	...	11,720	11,592	11,380	11,775	...	40	450,343	+ 27,493
Sheffield Corporation	20,539	21 287	19,443	20,133	...	21,929	21,846	20,844	21,335	...	40	842,027	+ 24,840
Southampton Corporation	3,716	3,964	4,026	3,841	...	4,453	4,497	4,764	4,248	...	40	169,292	- 15,326
Southend-on-Sea Corporation	1,966	1,891	1,825	1,713	...	2,114	1,972	2,023	2,003	...	39½	100,150	— 171
St. Helens Corporation	1,868	1,879	2,287	2,140	...	2,138	2,129	2,459	2,308	...	39½	80,925	+ 5,030
Southport Corporation	1,365	1,507	1,555	1,456	...	1,527	1,532	1,585	1,558	...	39½	68,904	— 236
Sunderland Corporation	2,148	2,396	2,383	2,291	...	2,435	2,442	2,729	2,530	...	40	98 235	+ 3,454
Swindon Corporation	562	585	630	619	...	924	909	984	958	...	39½	32,381	+ 8,929
Wallasey Corporation	2,662	2,686	2,611	2,540	...	3,077	3,127	2,980	3,128	...	39½	137,369	+ 15,992
Walsall Corporation	3,120	3,371	3,478	3,118	...	3,647	3,703	4,015	3,597	...	40	138,568	+ 11 896
Walthamstow Corporation	2,243	2,398	2,136	2,127	...	2,509	2,508	2,352	2,428	...	40	98,013	+ 6,683
Warrington Corporation	1,351	1,368	1,494	1,378	...	1,488	1,419	1,610	1,425	...	40	54.108	+ 1,895
West Ham Corporation	5,671	6,049	5,583	5,527	...	6,479	6,787	6,398	6,011	...	39½	242.034	+ 20,227
Wolverhampton Corporation	5,616	6,553	6,135	5,653	...	6,417	6,655	6,735	6 209	...	40	247 682	+ 24.052
York Corporation	1,348	1,512	1,333	1,220	...	1,557	1,716	1,697	1,514	..	41	60,238	- 3,968

Underground Electric Railways Company of London, Limited.

NAME OF COMPANY	1928-29. WEEKS ENDING					1929-30. WEEKS ENDING					AGGREGATE.		
	Dec. 15	Dec. 22	Dec. 29	Jan. 5	...	Dec. 14	Dec. 21	Dec. 28	Jan. 4	...	Wks.	1929 30	Increase or Decrease
	£	£	£	£	£	£	£	£	£	£		£	£
Underground Rlys. (Common Fund Co.)	282,600	295,200	246,200	279,000	...	303,400	315,200	269,700	304,000	...	1	301 000	+ 25,000
London and Suburban District ...	39,900	42,700	36,800	38,800	...	44,800	45,800	41,300	44,200	...	1	44,200	+ 5,400

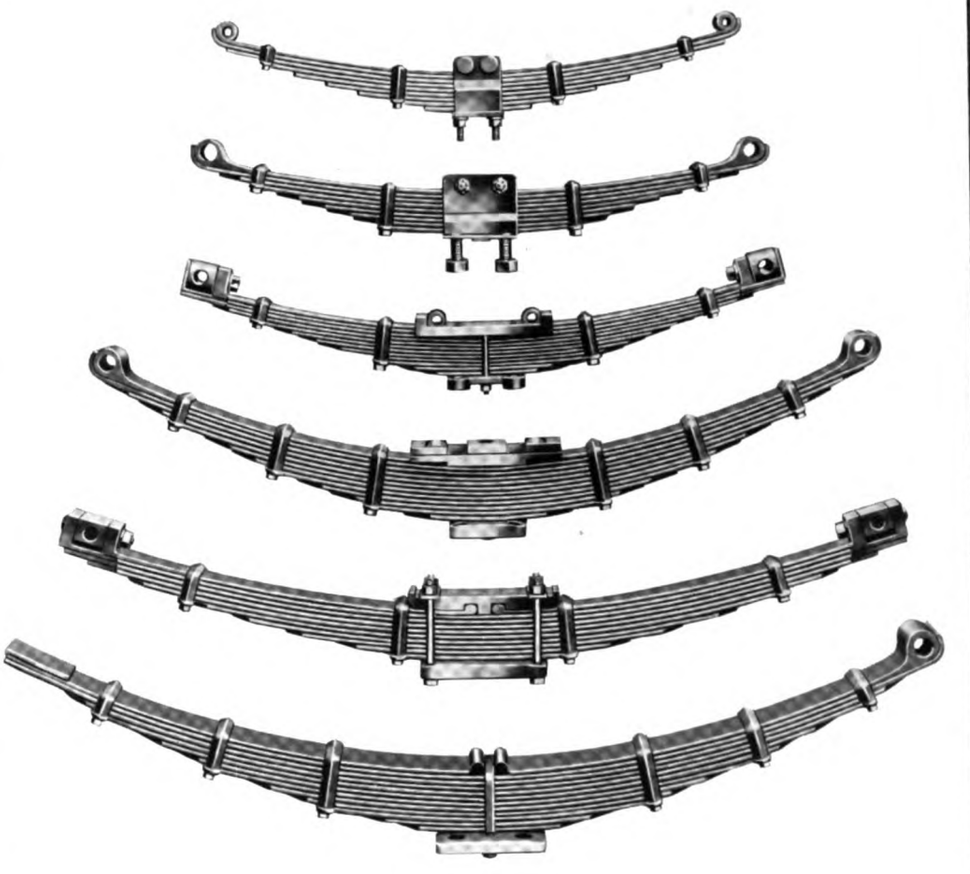
Colonial and Foreign Tramway Traffic Returns.

NAME OF COMPANY OR CORPORATION	1928-29 WEEKS ENDING					1929-30. WEEKS ENDING					AGGREGATE.		
	Dec. 15	Dec. 22	Dec. 29	Jan. 5	...	Dec. 14	Dec. 21	Dec. 28	Jan. 4	...	Wks.	1929 30	Increase or Decrease
	£	£	£	£	£	£	£	£	£	£		£	£
Anglo-Argentine	91,579	92,243	103,656	86,785	...	88 839	90,247	98,997	80,996	...	1	80,996	— 5,789
Buenos Aires Lacroze	13.742	13,727	14,052	13,579	...	13,095	12,222	12,772	12,530	...	26	308,184	— 28,012
Calcutta ... ... *Rupees*	138.062	143,043	161,758	111,752	...	128,205	124,216	127,436	77,114	...	1	77,114	— 34.638
Madras (2 weeks) ... *Rupees*	43,077	...	46,317	...	...	43,326	...	50,043	...	...	50	1,054,503	+ 5,974

	1928						1929.						AGGREGATE.	
	July	Aug.	Sept.	Oct.	Nov.	Dec.	July	Aug.	Sept.	Oct.	Nov.	Dec	Mths.	1929	Increase or Decrease
	£	£	£	£	£	£	£	£	£	£		£		£	£
Brazilian Trac. $	3,664,101	3,771,086	3,718,263	3,710,347	3,698,213	...	4,335,895	4,333,460	4,225,416	4,289,258	4,145,850	...	11	45,366,901	+ 6,265 634
British Columbia $	1,061,498	1,121,778	1,101,483	1,145,394	1,192,080	...	1,156,720	1,168,753	1,169,278	1,230,278	1,270,922	...	5	5,995,951	+ 373,718
Burma ... Rs.	66,228	65,886	69,309	72,878	66,905	...	64,649	61,309	59,467	66,885	62,191	...	4	249,852	— 25,126
Cape Town ...	27,156	28,060	27,145	30,021	...	...	27,779	27,636	26,579	27,501	...	...	...	...	...
Carthagena & H....	1,608	638	1,189	1,701	1,130	676	1,100	1,169	660	1,953	1,350	1,314	12	13,367	+ 277
Durban	28.483	24,302	22,545	23,402	22 498	...	29,110	25,619	22,371	24,320	23,214	...	4	95,524	+ 2,777
East India ...	4,104	3,978	3,851	3,941	3,803	3,670	3,801	4,152	4,126	4,078	3,905	3,721	5	19,982	+ 734
Kalgoorlie... ...	1,763	2.114	2,056	1,738	...	...	1,664	2,100	1,980	1,703	...	...	1	17,174	— 291
La Plata	8,906	8,762	9,089	9,781	9,789	10,300	8,928	9,322	9,328	14,104	...	10,327	12	116,119	+ 2.604
Para	14,900	14,547	14,578	17,246	14,810	...	15,044	15,224	15,200	17,887	15,542	...	12	181,955	+ 2,809
Port Elizabeth ...	7.224	7,365	6,741	7,404	...	...	7,503	7,402	7,190	7,593	...	...	...	...	...
Rangoon ... Rs.	125,445	120,962	119,510	126,400	110,770	130,110	122,630	123,550	122,850	132,742	137,703	138,400	12	1,486,686	+ 8,290
Shanghai ... $	302,129	310,497	327,997	351,115	327,363	321,970	329,139	335,172	365,828	371,611	360,247	345,415	12	4,073,322	+ 370,577
Singapore ... $	110,000	107,000	109,000	113,000	107,000	111,000	131,000	130,000	126,000	133,000	126,000	129,000	3	388,000	+ 57,000
Winnipeg ... $	465,135	462,591	475,363	527,790	553,186	...	497,935	491,612	518,521	515,308	597,391	...	11	5,993,875	+ 393,276

Digitized by Google

JONAS WOODHEAD & SONS LTD
LEEDS.



SOME OF WOODHEADS' SPECIALITIES.

LAMINATED SPRING EXPERTS

TELEPHONES
20814
20815
LEEDS

TRADE MARK

TELEGRAMS
FORGE
LEEDS

Digitized by Google

A 'National' responsibility—who better fitted to share it than the "Builders of London's Buses"?—

We have received orders from the National Omnibus & Transport Co. for 17 "REGENT" and 12 "REGAL" Passenger Vehicles.

E & D ENGLAND now use AEC Power Units and Components exclusively.

AEC

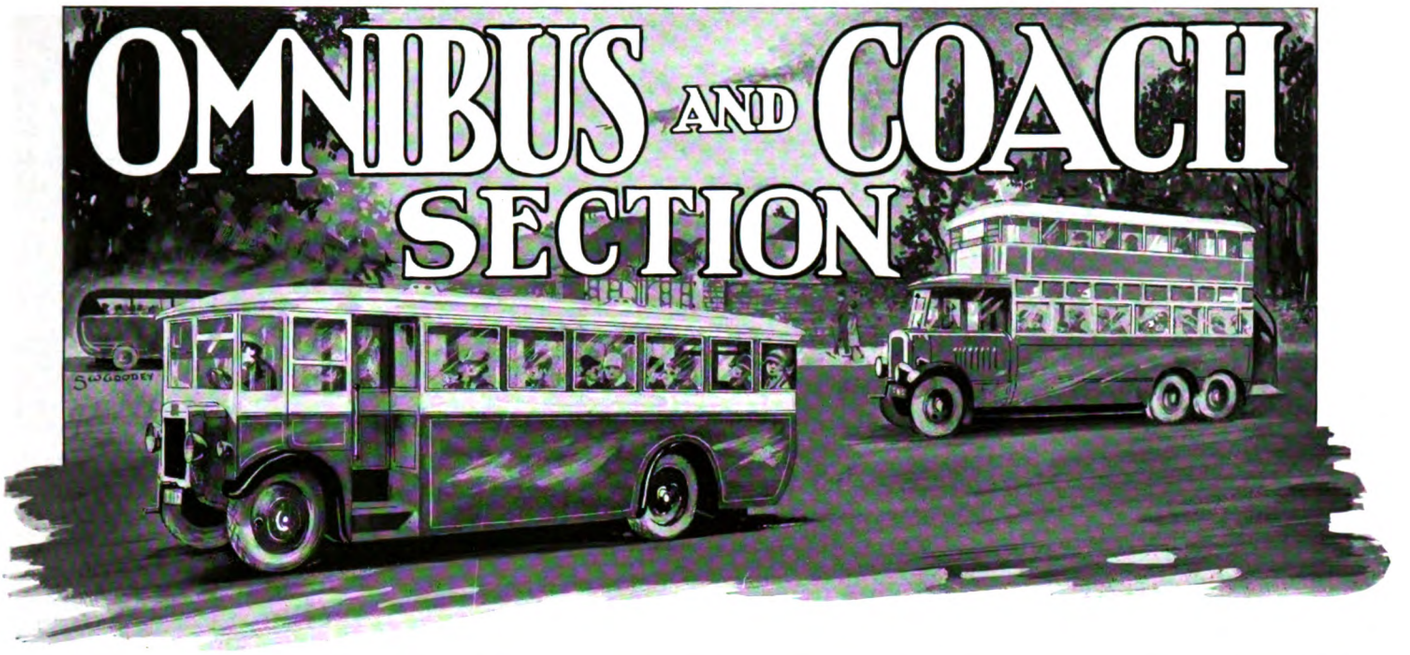
392

The Associated Equipment Co., Ltd., Southall, Middlesex.

REGAL and REGENT

SINGLE DECK BUS DOUBLE DECK BUS

Digitized by Google



OMNIBUS AND COACH SECTION—TWENTY-FIFTH YEAR OF PUBLICATION.

THE RAILWAY FACTOR IN ROAD SERVICES.

In more than one quarter transport operators are puzzled by the slowness of municipal authorities in coming to agreements with the railways for joint working. Far different is it with the most important omnibus companies throughout the country, including the thirty-six that are allied with the Tilling and British Automobile group and the British Electric Traction Co. Whatever may be the reason for the local authorities' backwardness it is possible that in instances where the Corporation has to meet competition from one or more of these large companies the railways may not indefinitely be able to hold out an offer of co-operation with hesitant operators. Little or no information seems to be available as to the causes of the delay. Doubtless at the outset difficulties arose in the two counties in which local authorities have made progress towards regional operation of omnibuses, but even that extended method of working ought not to be incapable of a solution. In the case of area operation by a number of municipalities the railway companies might perhaps be induced to waive their claim to purchase the long-distance services, for in the circumstances peculiar to area operation these might possibly be classed as "Category B" services to places a short distance outside the municipal boundaries. Again, it would be to the advantage of the railway companies to be admitted as a partner to a single organization than to have the trouble of accounting with half-a-dozen towns. Doubtless, another cause of the delay is to be attributed to the resolve arrived at by the Municipal Tramways and Transport Association to re-introduce the Omnibuses Bill in the ensuing session of Parliament, followed by the surprise inclusion in the Government's Road Traffic Bill of clauses that would avert the need for the Omnibuses Bill. Now that an insignificant attendance of the House of Lords has deleted those provisions from the measure, considerable time must elapse ere the Government can restore the clauses in the Commons. Hence the Corporations would be well advised to follow as soon as possible the examples of Sheffield, Huddersfield and Halifax in joining the railway companies in a combination that promises to prove advantageous to all concerned.

THE BALLOON TYRE AND ITS TAXATION.

Thanks to the rebate of 20 per cent. allowed a year ago in the tax on heavy vehicles fitted with pneumatic tyres, a revolution has been effected in public passenger and goods transport. On the former vehicle the air tyre has become universal, except in the Metropolis, where divided control and the fettering of expert direction has placed the capital half a decade behind the provinces. Among goods vehicles, too, there has been a great change-over, and on those built specially for operation on pneumatics, loads of ten and twelve tons are not uncommon, while light vans and even those up to 5 tons flit about with the ease of a luxurious car. The vehicle-owners thus secure the return of a small amount of the increased taxation which was imposed upon them in 1928 by Mr. Churchill for the dual purpose of helping the country's finances and the railway companies. What weighed with the Chancellor in making the concession was the fact that elimination of the solid tyre means a reduction in the cost of road maintenance, besides lessening the noise and vibration complained of in towns. Viewing the change from the latter aspects, residents in the London area may be thankful that from January 1, all omnibuses submitted for licence have had to be provided with pneumatic tyres. Passengers also will be glad to exchange the jolting of the solid tyres for the vehicle that would naturally be regarded as being the more comfortable. Whether the extra comfort is at all times to be experienced depends upon three circumstances. First, the springing must be adapted to the tyres. In the second place, if the pneumatics are of the high-pressure type the omnibus must be carrying at least half of its full load if the passenger is to notice much difference between the pneumatics and new solid tyres of the latest manufacture. The third circumstance relates to the balloon or low-pressure tyre. This tyre has for some years proved its superiority

Digitized by Google

OMNIBUS AND COACH SECTION

on the private car, and thanks to the pioneering of owners of long-distance omnibuses and coaches, it has now become an essential when provincial omnibus operators order new vehicles. That is not to imply, however, that the balloon tyre has been fully perfected. Its less sturdy construction renders it very susceptible to rapid tread wear and damage, unless considerable extra care is taken of it. A slight under-inflation, or a slight misalignment of a wheel, produces a series loss of tyre mileage. That is one reason why we urge that users should have a more generous rebate. Another reason is that the low-pressure tyre is even less destructive to the road.

ENCOURAGEMENT FOR THE MOTOR INDUSTRY.

It is all to the advantage of manufacturers of motor vehicles that a Cabinet minister should be inquiring into the possibility of increasing the export trade. That is not to say that this section of industry entertains any hope that "spoon-feeding" can be a substitute for enterprise. It has ground for complaint, however, that since the war it has been burdened with heavier taxation and its customers forced to pay exorbitant road licence charges as compared with foreign countries. Perhaps the severest blow was when the first short-lived Labour Government discarded the McKenna duty which had been imposed to prevent the importation of vehicles that made no contribution to British rates and taxes. The moderate impost of 33⅓ per cent. afterwards re-established by Mr. Churchill has worked wonders for firms possessing energetic management and up-to-date works. In addition individual manufacturers and the Society of Motor Manufacturers and Traders have shown energy in world travelling and establishing facilities for the sale of cars designed for use abroad. Unfortunately the change of Government last May brought an utterance from the Chancellor of the Exchequer which is regarded as a threat to deprive the trade of the assistance of the duty. Still the outlook is not hopeless. In his talks with the manufacturers Mr. J. H. Thomas, the "Minister for Unemployment," has learned that for every additional man employed it is safe to assume that yet another person will find work. Further, he has discovered that out of 4½ million cars produced in the world last year Great Britain made 211,000 only, while the Dominions bought from America twice the output of this country. Mr. Thomas looks upon these figures as an indication of the possibilities for the export of British motors. And no doubt the S.M.M.T. reminded him that the duty has enabled the prices of vehicles to be lowered and the output increased. Other results have been the opening of car and tyre factories here by foreign makers.

THE ILLUMINATION OF OMNIBUSES.

A pleasing concealed lighting system for omnibus interiors is the latest achievement of the engineers' department of the London General Omnibus Company. In a lecture on the subject of omnibus lighting given before the Illuminating Engineering Society by Mr. H. Stallan, of the engineers' department, the lecturer referred to the introduction of domed roofs in the new design of omnibus, and mentioned that Mr. G. J. Shave, the chief engineer, had suggested abolishing the ordinary electric fittings and utilising a section of the dome, with a translucent material illuminated from behind. Thus no obstruction would be shown on the lines of the vehicle, and at the same time a diffused lighting effect would be obtained. As glass could not be used for this purpose, a non-inflammable celluloid which was sprayed white had been utilised with satisfactory results. Even better results were obtained with celluloid which had had the pigment mixed into it during manufacture. This had increased the illumination by 100 per cent. and the improved type of omnibus now being produced is to be fitted with this substance, known as aceteloid, as it has proved superior to the several other materials that have been tried. The lighting intensity at the average reading height of the new omnibuses when fitted with this material is about six candle-power. Another indication of L.G.O.C. progress is that sanction has been obtained to use illuminated destination blinds in place of the antiquated board with a lamp below it. Owing to the restricted space available clear bulbs did not illuminate the blind sufficiently; the defect has been overcome by fitting opal bulbs. Thanks to the zeal of manufacturers of lighting plant, the illumination of modern omnibuses has vastly improved throughout the country. The demand for more light and electric power on omnibuses continues to grow, and Mr. Stallan opines that the generator will become too large to be driven by the existing engine and eventually an independent lighting plant will have to be installed. It has already been experimented with and except for vibration it has proved successful.

NORTHERN IRELAND TRAFFIC BILL PASSED.

TRIBUNAL TO FIX OMNIBUS FARES.

The Senate of Northern Ireland, on December 17, read a third time and passed the Motor Traffic Bill, which amends in certain particulars the Motor Traffic Act, of 1926.

Under the provisions of the Bill a fares tribunal, to consist of three persons, will be set up and will be empowered to fix motor-omnibus fares. It will hear complaints of excessive charges, or of the need of increased fares, and from its decisions there will be no appeal.

The most contentious proposal in the measure is to the effect that juries trying cases where motorists are charged with manslaughter may at their discretion find them guilty on an alternative charge of reckless driving with a maximum penalty of six months' imprisonment.

GREAT WESTERN RAILWAY AND BRISTOL TRAMWAYS.

The terms on which the Great Western Railway has acquired a financial interest in the Bristol Tramways and Carriage Company have not yet been divulged, but it is understood that the agreement relates more to the motor omnibus services than to the tramways. It is not anticipated that the arrangement will make any material difference in the working of the tramways. The Great Western Company has now acquired an interest in practically every important road transport company operating in the West of England and South Wales.

BIRMINGHAM TRAFFIC CONTROL COMMITTEE.—Birmingham Council has decided to form a Traffic Control Committee to deal with the regulation and distribution of vehicular traffic, the alteration or abandonment of existing routes for tramcars, omnibuses and trolley vehicles and the suggestion of new or alternative routes, and generally with matters the object of which is the improvement of traffic facilities in the city.

Digitized by Google

OMNIBUS AND COACH SECTION

LONDON TERMINAL COACH STATION AND HOTEL.

How an All-England Need Has Been Met at Kennington Oval.

The most complete and attractive terminal station, together with hotel and business premises, yet provided in London for long-distance coach traffic is now in operation on an excellent site a few hundred yards along the Clapham Road side of the Oval, Kennington. From the points of view of size and of convenience to the numerous coach proprietors whose vehicles have been using the station since the middle of last summer, the venture may be described as unique in this country.

For passengers also the terminus is very advantageous. A journey to it from any of the Thames bridges between Vauxhall and Blackfriars occupies less than ten minutes, and Kennington Oval is conveniently situated for communication with all the London districts. London County Council tramcars from the Embankment pass the station, and at the Oval cars converge from the greater part of South London. Omnibuses from a still wider area pass through the locality at the rate of many thousands a day, while the City and South London tube railway has a station at the Oval, a stone's throw from the famous cricket ground. One can foresee the day when coaches from the provinces will bring cricket enthusiasts direct to the Oval gates and then proceed to the London Terminal Coach Station, a sixth of a mile distant.

Forecourt of the London Terminal Coach Station at Kennington.

Already thirty different coach lines in England, Scotland and Wales, owned by many of the chief proprietors in Great Britain, are using the station, which is thus brought into communication with nearly two hundred large towns as terminal points. An individual coach-owner pays 2s. per day for all the advantages offered by the station and 4s. per night for garaging, or an inclusive charge of 30s. per week for day use and night garaging. Drivers are afforded facilities for effecting small repairs to their coaches, no charge being made for the use of benches, tyre pumps, etc. For large repair jobs and for tyre repairs there are commodious works at the rear of the new shops forming the south side of the station approach.

Apart from its advantages as regards convenience to coach-owners and passengers, this London terminal is to be welcomed from two public standpoints. One is the lessening of congestion created by provincial coaches discharging and taking up passengers on the Victoria Embankment, a proceeding that may not be permitted much longer, if only because of the unfairness to owners who use a private station. The other public advantage is that the station is situated outside the congested thoroughfares. Direct roads radiate from it to all the towns in Kent, Surrey, Sussex and the West, ensuring a quick and uninterrupted passage through the outskirts of London. Coaches from the North also find the Oval district an advantageous one.

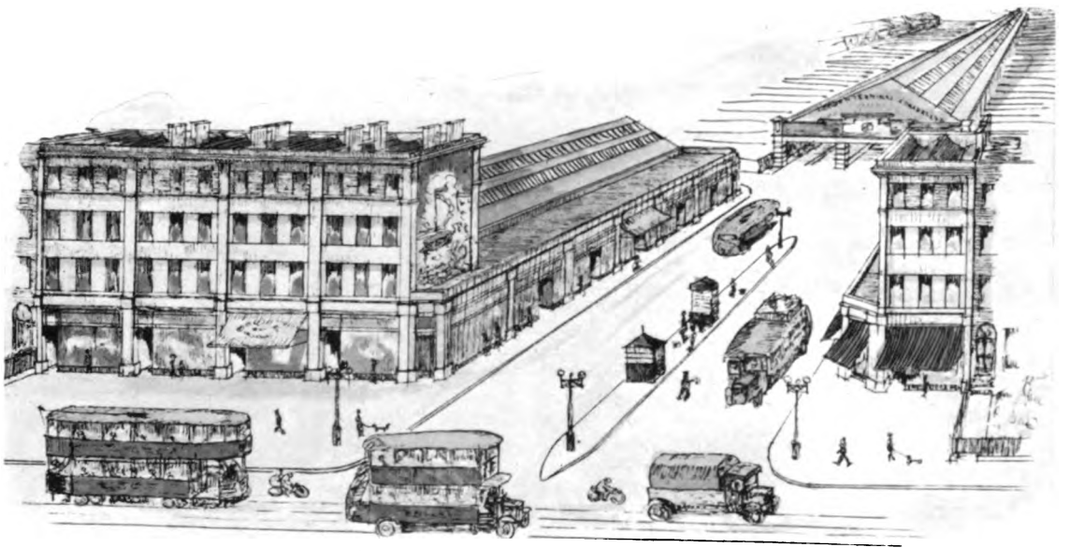
There is thus every justification for the proprietors of the station urging the public, when booking tickets, to insist on the same being issued via "London Terminal." Agents have been appointed in all the principal towns and throughout London, which city alone has more than four hundred who act for the station. At the terminal itself there is a commodious booking office under part of the hotel which forms an important link in the undertaking, to which the owners have given the name of "Britain's Premier Coach Station." "Coach Travels, Ltd.," is the title of the company which operates the station, of which Mr. W. Featonby is the general manager. For some time previous to this appointment Mr. Featonby was booking office manager to the Queen Line Coaches.

To two directors of the well-known coaching firm, Blue Belle Motors, Ltd., in the adjoining suburb of Brixton, belongs the credit for the erection of the London Terminal Coach Station. Their ideas have been given brilliant interpretation by Mr. E. W. Wallis, L.R.I.B.A., whose plans received the sanction of the London County Council and the London Fire Brigade.

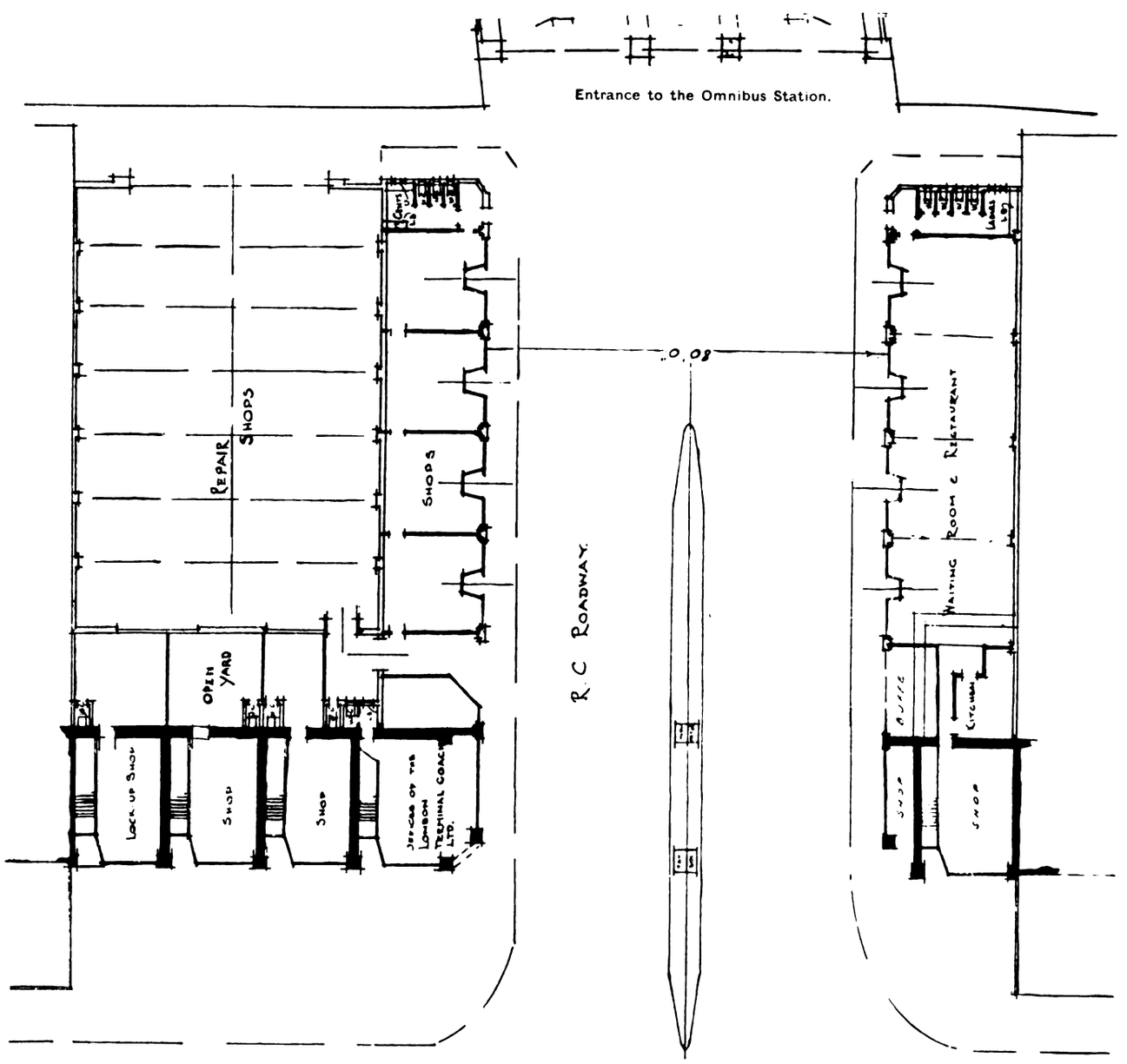
For the carrying out of the scheme considerable property of a residential character had to be acquired, extending 850 ft. back from Clapham Road, and across Palfrey Place to Carroun Road, the frontage to Clapham Road being 200 ft. The station can thus be entered via three roads, a valuable circumstance if by any mishap the very wide entrance in Clapham Road became temporarily obstructed. Palfrey Place divides the extensive forecourt from the station proper; Carroun Road is at the rear of the station, and the traffic on both is negligible. The northern ends of each of the two back roads lead to the Oval and Vauxhall, and the southern ends to Clapham.

In designing the station the architect has shown an appreciation

Digitized by Google



Aerial Drawing of the Station and Hotel.



Ground Plan of the Forecourt of the London Terminal Coach Station.

Digitized by Google

OMNIBUS AND COACH SECTION

of the needs of the passengers which was sadly lacking when the London railway termini were erected. In both cases there are hotels, though that at the coach station is at present a very modest structure compared with those of the railway companies. It has twenty-four bedrooms on the three floors above three of the shops on Clapham side of the forecourt, but the site affords space for an extension when business warrants it. The fourth or corner house on the Clapham side of the forecourt is devoted to the manager's offices, and the corner shop underneath is the booking office where tickets may also be obtained for any place of amusement. It is in the provision of the shops on the four faces of the forecourt that the planning of the terminal differs from the design of a railway station. All of the dozen or so shops are not let yet, but with the increased coaching business that is expected during the greater part of 1930 there will probably be no difficulty in finding tenants for them all, notwithstanding that no shop must in any way compete with the café and buffet that take up the greater part of the space on the Oval side of the forecourt.

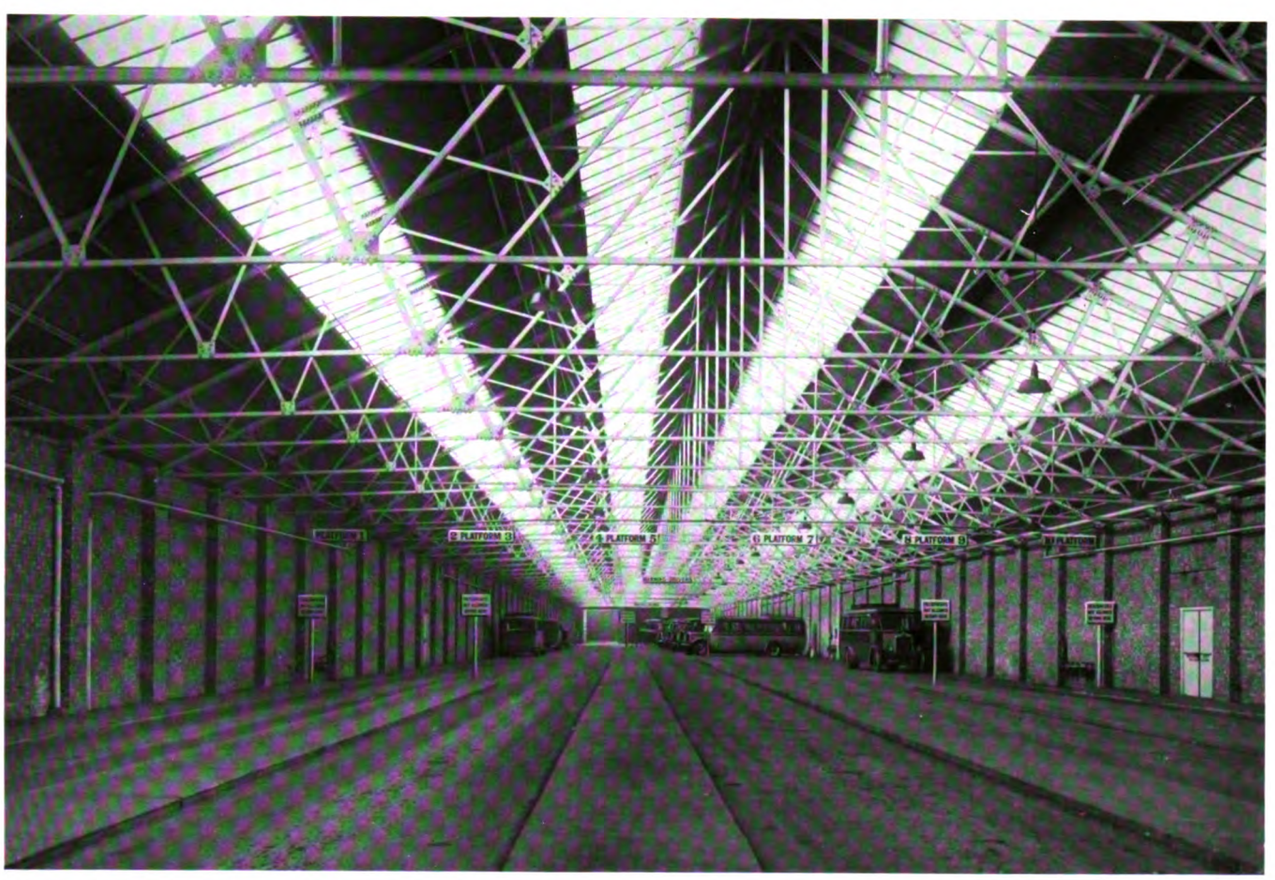
Simplicity is the dominant note of the architecture, but it is a plainness that at the same time gives the several buildings collectively a pleasing appearance. The approach road through the forecourt, constructed between Clapham Road and the station buildings, has a width of 100 ft., which is also the width of the station.

A control cabin, situated on a refuge at the entrance to the forecourt, at busy times takes charge of the traffic on the in and out tracks. Electric devices record the arrivals and departures, and there are signals to indicate the number of the platform and the time at which a coach will leave. In the facade above the three wide doorways to the station is a clock with a face 4 ft. 6 in. in diameter which at night is flood-lighted. The clock is synchronised from Greenwich and it operates electric clocks in the commodious waiting rooms, the café and the booking offices.

In an area 658 ft. long by 100 ft. wide there are nine platforms, long enough to enable forty coaches to be loaded and unloaded simultaneously. The interior length and breadth is sufficient to take eight railway trains side by side. Part of the space, however, is devoted to the parking of coaches and behind this section of the station there is an unroofed area in which eight petrol and oil pumps have been installed by Liquid Measurements, Ltd., the storage tanks having a capacity of 12,000 gallons. Steel shutters divide this section from the station proper, and there are three steel doors giving exit into Carroun Road. Coach owners are supplied with petrol and oils at the same rates as the supply companies charge large consumers.

Lighting of the station during the day is effected by four rows of roof lights, comprising quarter-plate wire-glass fixed in Hope's patent lead glazing. The roof is capable of supporting a weight of 400 tons and it contains 17,000 sq. ft. of glass, 40,000 sq. ft. of fire-proof asbestos and 100 tons of steelwork. All this material was supplied by Smith Walker, Ltd., of 16, Caxton Street, Westminster, S.W.1. At night there is electric illumination by more than 300 lamps of high power, four three-light standards at the entrance and forecourt and several searchlights for use as flood lights at the entrance. The contractors for the lighting were Messrs. Pruden & Pope, Westmount Road, S.E.9. Protection against fire is provided by five hundred Hoffmann sprinklers fixed in the roof, the water being conveyed from a 17-in. main by two 6-in. steel pipes fixed along the whole length of the building. This arrangement received the sanction of the County Council, the Metropolitan Water Board and the Fire Brigade. Cloak rooms are provided at convenient places.

The principal contractor for the station and the reinforced concrete roadway was Hickman Ltd., Great Russell Street, W.C.1.



Showing the Nine Platforms and Parking Place in an area of 658 ft. by 100 ft.

TROLLEY OMNIBUSES FOR TORQUAY.—Torquay Town Council has decided to sanction under certain conditions the substitution by the Torquay Tramways Company of trolley omnibuses in the place of tramcars.

Digitized by Google

OMNIBUS AND COACH SECTION

RAILWAY OMNIBUS POLICY IN 1929.

Financial Interest Acquired in Many Companies. But Slow Progress with the Municipalities.

It was during the Parliamentary session of 1928 that the four group railways secured powers to operate road transport in any territory then served by their respective lines, each Act containing a proviso to prevent competition with local authorities who are providing an efficient service within their own boundaries. Without delay the two leading groups—the London, Midland & Scottish and the London & North-Eastern—approached the municipal authorities who are operating omnibuses in order to establish joint ownership and control under the conditions laid down in the Acts. These conditions took account of the fact that usually municipalities have had difficulty in securing powers to operate long-distance services, and that in many cases they are authorised to run for short distances outside their boundaries. Where a railway and a municipality both intend to operate omnibuses in the same territory, and each is prevented by law from doing something which the other may do, an obvious solution of the difficulty is that the two should come to agreement, or run joint services.

The Terms Offered to Municipalities.

The L.N.E.R. and the L.M.S. jointly proposed to the municipal tramway owners who operate omnibuses that the statutory omnibus services in and around a town should be divided into three categories, viz. :—

Category A.—Services entirely within the municipal boundary.
Category B.—Services to places a short distance outside.
Category C.—Long-distance services.

Category A services would continue to be operated by the Corporation ; those in Category B would be managed by a joint committee, four members to be elected by the local authority and four by the railway companies, Category C routes to be worked entirely by the railway companies. Obviously Category B routes do not terminate at the boundary when entering the borough, but go on to the town terminus. All receipts taken on a B route between the town terminus and the boundary are credited (less working expenses) to the Corporation as the traffic is, strictly speaking, Category A traffic. Similarly, the receipts taken in the Category B territory by a C route omnibus travelling part of the way over a B route are credited to the joint committee's income. Long-distance receipts up to the Category B area go to the companies.

In practice, all services are actually managed by the municipal transport manager, and both parties benefit from the arrangement. By utilising the municipal depots, etc., the companies are saved heavy overhead costs and capital expenditure, while experiencing the advantages of specialised local experience. The local authority is relieved of the fear of undue competition, and the public has reliable road services maintained by two statutory bodies.

Sheffield was the first Corporation to be approached by the L.M.S. and the L.N.E.R., and on December 5, 1928, the City Council unanimously adopted a report by the Tramways and Motors Committee recommending the making of an agreement with the companies. This agreement was published in full in The Tramway and Railway World of December 8 of that year, showing that the companies were to pay £63,000, of which £29,300 was for goodwill and £33,700 for half ownership of fifty-five omnibuses and the entire purchase of fourteen. These large sums are to be accounted for by the extensive business which the Sheffield Corporation has built up over many years, its omnibuses traversing a wider area than in the case of any other municipality. Huddersfield and Halifax are other towns that have come to arrangements with the companies. The chairman of Halifax Tramways Committee has congratulated the Corporation upon having transacted the best day's work that has ever been accomplished for the town's transport services.

By this time all the municipal omnibus authorities in the territories of these two groups have been approached, but very few announcements of the conclusion of similar arrangements have been published. Some reasons that may account for the delay may be glanced at. In Yorkshire and Lancashire considerable progress had been made in the joint running of tramways and omnibuses by various municipalities prior to the advent of the powers now possessed by the railways. Glasgow Tramways Committee has announced the cause which has led to the breakdown of the negotiations with the L.M.S. and L.N.E.R. which were begun in June last. The Corporation is applying to Parliament for a transport monopoly in the wide area over which the tramways operate outside of the city, notably to Paisley, Airdrie and Coatbridge. Some compensation in the form of transport rights is also desired on the new Glasgow-Edinburgh road and the Anniesland-Duntocher road, which have been constructed by the Glasgow and other local authorities. With other Scottish municipalities there is little scope for agreements, for the majority do not operate far outside of their boundaries, if at all. In Wales there is still less room for concerted operation. Cardiff and Newport, the two available authorities, are running joint services following prolonged conflict with private interests. A triple partnership ought not to present an insuperable difficulty.

Taking the three divisions of Great Britain as a whole the number of motor omnibuses operated by local authorities is about two hundred short of 4,000. Only a minority of these vehicles compete with the railways ; but, as before explained, it is advantageous both for the companies and the municipalities that further omnibus extensions should be carried out by substantial operators.

Widespread Agreements with Companies.

Without counting the five thousand omnibuses operated over a large area around London by the London General Omnibus Company, there are probably more than 10,000 omnibuses which are being worked by private enterprise in the provinces. The number of omnibus and coach undertakings in England and Wales in the summer of 1929 was 269. Of that total 193 were individuals or companies working 419 express services over long distances by means of nearly 1,500 coaches. Working over nearly 7,500 miles of road, these vehicles are credited with an approximate daily mileage of 214,700 miles. There are also 3,312 general services in England, Scotland, Wales and Ireland. The latest issue of the Roadways Time-Table gave approximately 18,000 towns and villages as enjoying the benefits of general or express services.

For the railway companies to conclude working agreements with the whole of the 269 undertakings already mentioned would occupy some years, but fortunately a considerable number of the services are run by two groups who, between them, direct 36 omnibus undertakings. These groups are the Tilling and British Automobile Traction, Ltd., and the British Electric Traction Co., Ltd. Their operations cover nearly all the provinces in England, together with parts of Wales and Scotland, and they own about 7,500 omnibuses.

Negotiations between the L.N.E.R., the L.M.S., and the Southern Railway, and the groups mentioned have reached the stage of announcing that standing joint committees are being set up in each district to settle various matters relative to the co-ordination of road and railway traffic, the railway companies acquiring a substantial, though not a controlling, interest in each operating company. A table given in our issue of December 12 showed the undertakings involved and the price offered per ordinary share, and for convenience of reference is here repeated :—

Company.	Price offered per Ordinary Share. £ s. d.
Aldershot and District Traction	1 6 6
Birmingham & Midland Motor Omnibus	5 0 0
Cumberland Motor Services	2 15 0
East Kent Road Car	2 3 6
East Yorkshire Motor Services	1 5 0
Eastern Counties Road Car	2 14 6
Hants and Dorset Motor Services	2 5 0
Lincolnshire Road Car	1 6 6
Llandudno Coaching and Carriage	1 5 0
Maidstone and District Motor	2 8 6
North Western Road Car	2 0 0
Northern General Transport (New)	1 8 0
Northern General Transport (Old)	1 8 6
Ortona Motor	2 5 0
Peterborough Electric Traction	1 2 6
Ribble Motor Services	1 17 6
Southdown Motor Services	3 5 0
Trent Motor Traction	1 6 0
West Yorkshire Road Car	2 10 0
Yorkshire Traction	1 12 6
Yorkshire (Woollen District) Tramways	1 4 0

The British Electric Traction Co., Ltd., holds shares in the following concerns :—

Greenock Motor Services.
M'Kirdy and M'Millan.
Northern General Transport.
Peterborough Electric Traction.
Potteries Electric Traction.
W. and F. Rogerson.
Scottish General Transport.
South Wales Commercial Motors.
South Wales Transport.
United Automobile Services.
West Yorkshire Road Car.
Yorkshire (Woollen District) Electric.

The Northern General Transport Co. and the Yorkshire (Woollen District) Tramways are controlled by the British Electric Traction Co., and the last-named also indirectly controls the Birmingham and Midland Motor Omnibus Co. The Tilling and British Automobile Traction Co. either controls or holds large interests in the other companies given in the above list.

Digitized by Google

OMNIBUS AND COACH SECTION

The offer of the railway companies is conditional upon their acquiring a sufficient number of shares to give them a holding equal to that of the largest other individual shareholder in the company. As regards the northern companies, the railways offer to purchase up to 50 per cent. of the shares, if available, and in any case their holding is to be equal to that of the parent company.

The Southern Railway desires to secure one-third of the capital, which will be equal to the holding of the parent company, that is to say, the Southern Railway and the parent company will between them hold about two-thirds of the shares, and exercise joint control. This applies to five motor service companies, viz.: The Aldershot and District Omnibus, the East Kent Road Car, Hants and Dorset Omnibus, Maidstone and District, and Southdown Motor Services.

The movement for the co-ordination of road passenger traffic first began with the Great Western Railway, this company having held powers for operating road passenger and goods services for many years. Towards the end of 1928 the company and the National Omnibus and Transport Co. formed a new organisation—the Western National Omnibus Co.—for the joint operation of road passenger transport in Devon and Cornwall. A similar company, in which the railway and the omnibus company have equal representation, was subsequently formed by the Southern Railway and the National Company to operate in parts of Cornwall, Devon, Somerset, Dorset and Wiltshire.

Another G.W.R. development during 1929 was the formation of a company to absorb in the greater part of South Wales and Monmouthshire the road-motor services of the Great Western Railway, the South Wales Commercial Motors, and two other services. It is operating as the Western Welsh Omnibus Company. The railway company's interest in the Western Welsh Omnibus Company is fifty per cent., and four of the eight directors are nominated by them.

Omnibus access to the southern and most populated portion of Scotland is gained by the L.M.S. and L.N.E.R. through companies of the Tilling and B.A.T. group, namely the Scottish General Transport Co., the Caledonian Omnibus Co., and the Scottish Motor Traction Co., of Edinburgh. The latter control several other concerns, notably the Glasgow General Omnibus Co.

LOW-HEIGHT OMNIBUSES FOR NORTHAMPTON.

The six-wheel double-deck omnibus of which an illustration appears on this page is one of a number that Guy Motors, Ltd., of Wolverhampton, are supplying to Northampton Corporation. It will be noted that the over-all height of this omnibus has been considerably reduced, primarily by off-setting the transmission to the near side of the vehicle and by dropping the frame at the rear end. This enables a very low loading platform to be provided, together with a lower floor level inside the omnibus.

Guy Six-Wheel Omnibus in Service at Northampton.

An Underground Parking Station.—Hastings Corporation has adopted plans for a sea front improvement scheme which includes an underground parking station, which is understood to be the first of the kind in this country.

THE ROAD TRAFFIC BILL.

HOUSE OF LORDS REJECT THE OMNIBUSES CLAUSE.

The Road Traffic Bill of the Government was introduced in the House of Lords on December 5 by Earl Russell, Under Secretary of State for India, and formerly Parliamentary Secretary to the Ministry of Transport. In his preliminary comments upon some of the 109 Clauses, Earl Russell said that although the Royal Commission recommended that the weights of vehicles should be finally fixed by statute, the Government were unable to accept that proposal as a practical one, and had inserted a clause empowering the Minister to vary by regulation the weights, maximum or minimum. Adverting to the Commission's recommendation for a speed limit of 35 m.p.h. for heavy cars (coaches and omnibuses) fitted with pneumatic tyres, he stated that it would be impracticable to enforce the exact speed, and as the time-tables would really control the speed the Minister thought that 30 m.p.h. would be a wiser limit. These vehicles and commercial vehicles now attained speeds of 40-45 m.p.h. and had been singularly free from accident, and the Ministry had received protests from coach proprietors that the proposed limit was much too low. The proposal for compulsory third-party insurance had been discussed with insurance companies.

Viscount Brentford pointed out that it would be a hardship for a one-ton van to run at 30 m.p.h. while a car weighing 2½ tons was to be allowed to travel at any speed. He feared that difficulties would arise from five legal maximums of speeds for commercial vehicles.

Earl Russell announced that he hoped it would be possible in committee to run some of these schedules together.

The Bill was read a second time and referred to Committee of the whole House.

No Test for Drivers—Speed Limit Amendment Rejected.

On December 12 the House of Lords went into Committee on the Bill, the Earl of Donoughmore, Chairman of Committees, presiding.

Lord Newton moved an amendment to exempt from the operation of Clause 3 (prohibition of motor vehicles not complying with regulations as to construction) vehicles constructed within twelve months from the coming into force of the regulation.

Earl Russell said manufacturing interests had always been consulted, and under this Bill there was a statutory obligation to do so. He would not resist the amendment at this stage, and it was agreed.

Viscount Cecil moved an amendment to Clause 4 (licensing of drivers, etc.), to provide that in addition to physical fitness applicants should have competence to drive with reasonable skill and should have an adequate knowledge of the rules of the road.

Earl Howe said that the motoring organisations agreed with the view of the Royal Commission, which was that an examination of drivers was not wanted. The problem had become too big to make a compulsory examination possible.

Earl Russell stated that the L.G.O.C. drivers, who were the best in the country, had to pass an intensive training of three weeks to attain the skill which they possessed and unless something like that was to be imposed on all drivers they would not achieve the same result.

The amendment was negatived.

Earl Howe moved to extend from three days to five the period allowed to a motorist to produce his licence at a police station after having been requested to produce it by a constable and having failed to do so. The amendment had the support of all the motoring organisations.

Earl Russell accepted the amendment.

Consideration of the Bill was resumed on December 16. On Clause 10, which imposes speed regulations on all motor vehicles except private cars, Viscount Cecil moved an amendment to provide that a person driving at a speed greater than that specified in the schedule as the maximum for the class of vehicle should be deemed guilty of dangerous driving, unless he could show that in the actual circumstances of the case such greater speed could not involve danger to the public. The Bill abolished the speed limit for one class of vehicle. Did anyone consider that with this example the owners of the other vehicles would pay attention to the law?

Earl Russell said that public opinion condemned the existing law, and that was why police traps had disappeared. The present law did not stop dangerous driving. They desired to alter that

Digitized by Google

OMNIBUS AND COACH SECTION

state of affairs. A speed limit provided an entirely illusory protection. A safe speed was something which was constantly changing according to the kind of vehicle and the circumstances of the moment.

The amendment was rejected by 63 votes to 8.

DANGEROUS AND CARELESS DRIVING—HEADLIGHTS—DRIVERS' HOURS.

On Clause 11 (reckless or dangerous driving) the Committee negatived an amendment by EARL HOWE that speed should be not greater than is reasonable and safe having due regard to all the circumstances.

VISCOUNT CECIL proposed the deletion of Clause 12, which made it an offence to drive without due care and attention or without reasonable consideration for other persons using the road.

EARL RUSSELL stated that the clause was intended for minor offences and the amendment was withdrawn.

A new clause (which was afterwards withdrawn by leave) was proposed by EARL HOWE to secure the lowering of headlights in lighted streets. The clause, he said, had the support of the motoring organisations.

EARL RUSSELL announced that the matter was dealt with a few years ago in the Road Transport Act, which gave powers to the Minister to deal with this nuisance.

VISCOUNT BRENTFORD urged Earl Russell to give further assurance as motorists were anxious to prevent headlights being used improperly.

Further information on the Report stage was promised by EARL RUSSELL.

Clause 18 makes it an offence to cause or permit an employee who drives any public service vehicle, locomotive, or tractor, or any goods vehicle, to remain on duty for any continuous period of more than five hours or for more than ten hours in the aggregate in any consecutive 24 hours.

LORD NEWTON moved to omit sub-section (1), which refers to the responsibility of the employer; and EARL RUSSELL announced that so many representations had been received regarding the clause that the Government were satisfied that it would require redrafting and reconsideration. He would bring up a new clause.

HOSPITALS AND ACCIDENTS—INSURANCE—HIGHWAYS CODE.

At the sitting on December 18, EARL RUSSELL expressed willingness on the Report stage to consider a clause, moved by LORD LUKE, to bring within the scope of compulsory insurance (Clause 33) the expenses incurred by hospitals in treating motor vehicle accidents, up to a maximum of £25.

VISCOUNT BRENTFORD moved to add to the definition of authorised insurer (Clause 34) a paragraph to include a person who has deposited with the Supreme Court the sum of £15,000. He urged that if a company like a railway company or a great passenger of goods carrying company provided for their risks, they should not be compelled to pay a premium to an insurance company with resources, perhaps, only one-tenth of their own.

EARL RUSSELL said that the deposit would have to be £20,000 instead of £15,000 to agree with the Bill. He would consider how effect could be given to the amendment.

On the requirement, under Clause 38, that the driver of a motor vehicle must produce the certificate of insurance when applying for a driving licence, and under Clause 39 that a driver must produce the certificate when requested by a constable, VISCOUNT BRENTFORD said it would be impossible for these requirements to be satisfied by employees of a large company.

EARL RUSSELL said that the questions had been considered in conjunction with representatives of some large companies. They had very little doubt that by regulations the requirements could be satisfied.

On a motion by LORD SWAYTHLING to allow seven instead of three days for production of the insurance certificate, EARL RUSSELL agreed to accept five days.

To Clause 41, which requires assurance companies to deposit with the Supreme Court £15,000, EARL HOWE moved the addition of a clause to enable public service vehicle licences to be issued on condition that the applicant effected an insurance with an authorised insurer or made other adequate financial provisions. He cited the British Electrical Federation which had not any omnibuses, but owned forty subsidiary companies.

EARL RUSSELL said the proposed clause would present the difficulty of the Minister having to choose which company was solvent and which was not. He could not accept the amendment. If the mover would give him fuller particulars of the difficulty, he would consider the matter.

There was a long discussion on Clause 42, under which the Minister is to issue directions for the guidance of persons using roads, to be called the Highways Code. Failure to observe its provisions was to be relied upon as tending to establish or to negative any liability which was in question in civil or criminal proceedings.

VISCOUNT BRENTFORD, moved, on behalf of Earl Howe, a new sub-section to ensure that no directions should be valid until both Houses had passed a resolution approving of the same, but EARL RUSSELL suggested that if the directions were to be made legal and binding they should not merely be submitted to Parliament for an approving resolution, but should be drawn up by a Joint Select Committee. At this stage he would accept the amendment.

RESTRICTED ROADS—AMENDMENTS AFFECTING TRAMWAYS.

Clause 43 gives the Minister, on the application of a county or county borough, power after holding a local inquiry to prohibit or restrict the driving of vehicles on any specified road.

LORD ASKWITH moved to insert also "on the application of any authority, company or person owning or working any tramway or light railway constructed in a road."

EARL RUSSELL thought it unreasonable that such undertakings should be given powers which were only proper to a local authority, and the amendment was withdrawn.

LORD ASKWITH moved that no order made under the clause should apply to the driving of any tramcar or trolley vehicle.

EARL HOWE mentioned that in one or two towns he had met tramcars going in the opposite direction to the other traffic, leading to confusion and accidents.

EARL RUSSELL, accepting the amendment said that when a local authority desired to get a one-way traffic system the Minister thought that if a tramway undertaking was required to divert very expensive track the matter should be done by agreement.

To Clause 44 (erection of notice boards, etc.), LORD ASKWITH moved to add that sub-section (2) should not apply to any signal, direction post sign, or device placed or displayed by the owners of any tramway in pursuance of statutory powers or an order having the force of an Act.

EARL RUSSELL thought there should be some proviso that the signals should not interfere with any new signals used on the roads. He would accept the amendment and amend it afterwards.

On Clause 50 (extraordinary traffic) LORD ASKWITH moved an amendment to permit, in addition to a highway authority, any company, body or person charged with the maintenance of any portion of a road to take action to recover expense of maintenance due to extraordinary traffic. In many cases more than half of a road was maintained by a tramway authority, but they were unable to obtain a remedy for such traffic.

EARL RUSSELL said the provisions that were re-enacted in this clause were all passed after the Tramways Act of 1870 placed upon tramways the duty of repairing the tracks. It might be that at some time or other that obligation might properly be reconsidered. In his opinion it would be contrary to the principle of the Tramways Act to give these undertakers the powers of the local authority as regards extraordinary traffic.

The amendment was withdrawn.

TRAMWAY AND TROLLEY OMNIBUS PROTECTION—AREA COMMISSIONERS.

To Clause 54, relating to the licensing of public passenger vehicles other than tramcars and trolley omnibuses, LORD NEWTON proposed to substitute seven for nine passengers in a vehicle to be treated as a contract carriage. Many large cars that were used as public vehicles when the opportunity arose, and should come under the same regulations as genuine public vehicles. Upon EARL RUSSELL agreeing to make the number of passengers eight, the amendment was withdrawn.

LORD NEWTON complained that express vehicles had developed into omnibuses running short journeys and picking up passengers, although not subjected to the same control as the legitimate omnibus; and EARL RUSSELL promised to consider representations on the subject.

On a complaint by LORD ASKWITH that the lowest fare of 6d. permitted on such express vehicles would cut into the traffic of tramcars or trolley omnibuses charging 8d. or 9d., EARL RUSSELL accepted an amentment to make the omnibus fare one shilling.

LORD NEWTON moved to add to Clause 56 that no person should be capable of acting as a commissioner for a traffic area in which he is interested in the operation of public service vehicles either as a director or holder of securities in any company, or as a members of any authority operating such vehicles. EARL RUSSELL could not

Digitized by Google

OMNIBUS AND COACH SECTION

accept the amendment, as it would exclude members of a town council, who could not be said to have a direct pecuniary interest. LORD NEWTON said he would bring the point up on Report.

Section 2 of Clause 57 provides that not less than two commissioners shall be present at the hearing of any application for licences, and if there is a difference of opinion the matter shall be determined by the third commissioner. EARL RUSSELL explained that the three commissioners in an area would be appointed by the Minister, two being selected from persons nominated by local authorities. In order that local authorities might be satisfied that they were properly represented, it was intended that the two other commissioners should be able to outvote the chairman.

An amendment to require the submission of fare tables, as well as time-tables, with applications for road service licences, was moved by EARL RUSSELL as an addition to Clause 62, and was agreed to.

In Clause 80 EARL RUSSELL moved to substitute "roads which may be used" for "the routes to be followed" in sub-section (1). This was agreed to, and the sub-section now reads as follows:—"A local authority may make orders determining the roads which may be used by public service vehicles in the area and for fixing stands and stopping places and as to the manner of using such stands and stopping places."

POWER TO RUN PUBLIC VEHICLES.

ENABLING CLAUSE FOR LOCAL AUTHORITIES DEFEATED.

VISCOUNT BRENTFORD moved to omit Clause 92, which proposed to give to any local authority which had power to carry on a tramway, trolley or omnibus undertaking the further power to operate public service vehicles on any road within their district, and on any other road with the consent of the traffic commissioners of the area. The town councils of Derby or Leicester, for example, might go to the commissioners and get permission to run coaches, tramways and omnibuses to the East Coast, London, Manchester, and all parts of the country. It might be said that the power was intended for short extensions beyond the borough boundaries, but there was no doubt about what would happen. Clause 93 gave power to purchase land and erect buildings, and Clause 94 to enter into working agreements with other bodies to run public service vehicles and to use and maintain depots, buildings, property and so on. Clause 95 gave power to borrow the moneys necessary for these great undertakings. These clauses, he contended, had nothing to do with the regulation of traffic, which was the object of this Bill.

EARL RUSSELL said that a municipality would be empowered to run any distance, but he would remind their lordships of several things which would make it clear how that power was to be exercised. Omnibus powers had been obtained by a large number of municipalities under different conditions; some for two miles beyond the borough boundary, some five miles, some ten miles, and a few unlimited. These conditions had proved very tiresome to authorities who wanted to co-ordinate their services. If municipalities were allowed to exercise these powers there was no reason why they should be hamstrung in the method of doing so.

SUPPORTED BY THE ROYAL COMMISSION.

Why should the municipalities be compelled to come to Parliament for omnibus powers, spending thousands of pounds and suffering a year's delay? One of the reasons why the noble Viscount opposed this clause might be because every private competitor who was not a statutory undertaker would have to get only the consent of the commissioners to establish a service, thus securing the goodwill for a year, or two years, before the borough could obtain statutory powers. This part of the Bill was eminently reasonable. It provided finally for the Minister's decision being questioned in Parliament.

LORD NEWTON suggested that the matter should be decided by a more representative attendance of the House.

LORD ASKWITH said it was absurd to describe the Bill as one intended to squeeze out an intervening operator so that two municipalities, say Liverpool and Manchester, could unite to say there should be nothing intervening between them.

LORD HOWE was not impressed with the theory that Part V would lead to an enormous extension of municipal trading, but he urged that it should be withdrawn so as not to imperil a Bill that would do something to stop the appalling list of accidents.

LORD AMULREE stated that so far as he could see the clauses would only place a municipality in the same position as a company.

LORD CLWYD said that the powers were certainly limited. It should be made clear that not only those in favour, but also those opposed to proposals of a municipality should have a right of appeal.

EARL RUSSELL replied that any person providing transport facilities who had opposed the grant of a road service licence, if he was aggrieved by the grant, might appeal to the Minister. He wondered if the opponents of the clause knew that at the annual meeting of the Association of Municipal Corporations on November 27, over which Mr. Neville Chamberlain presided, the following resolution was passed: "That this Association approves the principle of the Bill to enable local authorities to provide and run omnibuses within and without their districts." If this part of the Bill was now for the first time to be regarded as a political question, their lordships would be interested to learn that the Minister had thought it proper to ask the Royal Commission on Transport their views upon it. Sir. A. Griffith-Boscawen, the chairman, replied in the following letter on November 27:—

The Royal Commission has had under consideration the question which you brought before me namely, the proposal to include in the Road Traffic Bill a clause which would enable any local authority already possessing transport powers of any kind to operate omnibus services either inside or outside its area, and thus obviate the necessity of the authority coming to Parliament for an extension of its existing powers. This is part of a larger question with which the Commission had already decided to deal after further consideration in the final report, but my colleagues see no reason why this particular proposal should not be included in the Bill. The result would be to place those local authorities which at present possess limited powers to provide transport services in a position of equality with other operators when applying for licences to the Traffic Commissioners, and further enable the authorities to substitute omnibus services for tramways if they consider it in the public interest to do so.

On a division, Clause 92 was rejected by 24 votes to 11. Clauses 93 to 98, forming the remainder of Part V, were negatived.

CONTROL OVER REGULATIONS—SPEEDS IN LONDON.

Clause 99 read as follows:—

(1) Any regulations made under this Act shall be laid before both Houses of Parliament as soon as may be after they are made, and if an Address is presented to His Majesty by either House of Parliament within the next subsequent twenty-eight days on which that House has sat after any such regulation is laid before it praying that the regulation shall be annuled, it shall thenceforth be void, but without prejudice to the validity of anything previously done thereunder or to the making of new regulations.

VISCOUNT BRENTFORD moved to leave out sub-section (1) and to insert the following amendment which was on the paper in the name of Lord Askwith:

(1) Before any regulations are made under this Act they shall be laid in draft before both Houses of Parliament and such regulations shall not be made unless both Houses by Resolution approve the draft either without modification or addition or with modifications or additions to which both Houses agree but upon such approval being given the Minister or the Commissioners by whom the regulations are proposed to be made may make the regulations in the form in which they have been so approved and the regulations on being so made shall be of full force and effect.

The stronger sub-section was more in accordance with the modern view of the rights of Parliament as against regulations by Ministers.

EARL BEAUCHAMP said the noble Viscount was now opposing the powers to be given to the bureaucracy of which he was in favour when he was in office.

The amendment was agreed to.

On the Schedule of the Limits of Speed, prescribing 30 M.P.H. for heavy passenger vehicles and motor tractors if fitted with pneumatic tyres, LORD MARKS moved to make the maximum speed in the Metropolitan Police area 20 M.P.H.

EARL RUSSELL hoped that this would not be accepted. It was contrary to the whole idea of the Bill to have areas sprinkled with special speed limits; and the amendment was withdrawn.

The EARL OF CRANBROOK moved to omit "no limit" in the speed of ordinary cars, and to prescribe a speed of 35 M.P.H. within the administrative County of London; elsewhere "no limit." The amendment was negatived, and the Bill as amended was reported to the House.

THE REJECTED OMNIBUS CLAUSES.

The Minister of Transport is credited with the intention of challenging the House of Lords on the Road Traffic Bill by re-inserting in the Bill, when it reaches the House of Commons, Part V. This part gives powers to local authorities to run public service vehicles on any road within their district and to purchase vehicles and land and erect buildings necessary for the purpose. Part V, it will be recollected, was, on the motion of Viscount Brentford, rejected by 24 votes to 11. If the clauses are again likely to be deleted when the Bill is returned to the House of Lords, the Minister's representative may at the critical stage withdraw them. In that event, it is stated to be highly probable that the contentious provisions will be submitted to the House of Commons as a separate measure.

Some trouble has been experienced with transport labour unions and transport owners with reference to the speed prescribed for heavy vehicles, and also as to the hours to be worked by drivers. It is stated that agreements have now been arrived at on those points.

Digitized by Google

OMNIBUS AND COACH SECTION

L.G.O. EMPLOYEES' NEW UNIFORMS.

In view of ultimately effecting a change in the uniforms of the whole of their drivers and conductors, the London General Omnibus Company are making an experiment by clothing one hundred of the men in suits of dark grey whipcord. The conductor's tunic has a roll collar, and the driver's overcoat has a belt which, by

L.G.O. Employees' New Uniforms.

buckling either at the back or the front, adds to his comfort. The uniforms are self-piped, have plain white metal buttons, and the standard "General" device for both collar and cap badges. The white chevron above the leather cuff has been broadened, thus making signals to traffic more conspicuous.

ABERDEEN'S FLEET OF ALBION 32-SEATERS.

The Albion Motor Car Co., Ltd., of Scotstoun, Glasgow, has received a fourth repeat order for omnibuses from Aberdeen Corporation Tramways Department, which is now operating nearly forty Albion vehicles. The latest order is for five 32-seat chassis, and the

Some Albion Omnibuses of Aberdeen Corporation.

complete vehicles will, it is understood, be similar to those shown in the accompanying photograph. The overtype of omnibus now supplied has an engine of 30–60 horse power.

PNEUMATIC TYRE IN HEAVY TRANSPORT.

How It Should be Used to Obtain the Best Results.

At recent meetings of the Institution of Automobile Engineers held at Newcastle-on-Tyne and Leeds, Mr. A. Healey read the paper entitled "The Pneumatic Tyre in Heavy Transport," prepared by himself and Mr. W. Bond for presentation to the World's Engineering Congress, which was held at Tokio last year. The paper concludes by giving the following directions for using such tyres so as to secure the best results :—

Presumably, the commercial user who adopts giant pneumatic tyres only does so because he expects to make a profit in some manner. That profit, either in cash or satisfaction, can easily be lost by want of care or perhaps lack of knowledge in respect to the best way of using the tyres. While the fundamental principles of best use are common to all pneumatic tyres, it is more important that for commercial purposes the tyres should regularly receive careful attention, and that the conditions of use should be controlled. Nothing is required which is beyond the capacity of any user who takes an interest in his vehicles, and the observation of the following simple rules is well worth while.

(1) Determine the front- and rear-axle loads of the given vehicle—when fully loaded. There must be no guesswork here—the vehicles must be actually loaded and weighed—each axle separately, and the weights noted once and for all.

(2) For the size of tyre in use, inflate to the pressures shown on the accompanying schedule for the given axle loads. Always calculate on the *maximum* axle load. Ignore the fact that the tyres are not always carrying it.

(3) Be sure that the predetermined pressure is in the tyres—by applying a suitable pressure-gauge to each tyre valve. Do not rely upon gauges attached to pumps—they are quite unreliable as indicators of tyre pressure.

(4) Every day before the vehicle goes out on its journey, test the pressure, and restore any that has been lost. If between one day and another there has been a loss of pressure of even 5 lb. per sq. in. regard that tyre as suspect and look for the leak. Do not run it a moment longer than is absolutely necessary.

(5) Every week remove one tyre, examine it and the tube—arrange for any repair which may be necessary. Clean the rim—keep it free from rust—paint if necessary—and replace it. Remove another tyre next week, and do this regularly all round, and ensure that every four weeks all the tyres have been examined.

(6) Ignore the effect of air temperature on pressure. This means that inflation should *not* be reduced in hot weather. If a tyre runs noticeably hotter than another—it is evidence of too little air—not too much.

(7) Brakes or clutches out of order cost money in tyres. Fierceness and uneven action in brakes is especially important in its destructive effect and so is one brake acting before the other.

(8) Misalignment is a very costly error. It is rare in well kept fleets, but it does occur. Suspect it at once if one tyre is seen to be wearing more rapidly than the others on the same vehicle, and have the fault corrected.

(9) Drivers should suit the speed to the road conditions. All good drivers can "sense" this. Avoid running at speed over loose stones, pot-holes, and wavy surfaces. Keep off tramlines, especially tramway points.

(10) Avoid overloading—the extra money which may be taken is not profit. Usually it would be more economical to pay the passengers forming the overload to stay away.

The destruction of the tyres advances at least in proportion to the *square* of the overload but probably more.

(11) Keep oil and grease off the garage floor—but if it is there do not let the tyres stand in it even for an hour. If the tyres get oily—petrol can be applied sparingly and wiped off at once.

If the preceding rules are properly observed, then no question of tyre "trouble" should ever arise (except that due to accidental damage on the road); maximum durability of tyres, maximum safety to passengers, minimum delays and absence of annoyance are assured. If in practice or emergency some of the preceding rules have to be neglected, do not neglect Nos. 1, 2, 3, and 4, governing correct inflation.

A Birmingham Extension.—The Tramways Committee has decided to substitute omnibuses for the Bolton Road tramways, which are to be discontinued on January 31.

Digitized by Google

OMNIBUS AND COACH SECTION

NEW MOTOR VEHICLE BRAKING SYSTEM.

OPTIONAL HAND OR ELECTRICAL CONTROL.

A patent has recently been granted to Mr. H. M. Dudgeon and Mr. T. C. E. Rowland, of the Birmingham Corporation Tramways, for a new braking system which promises to be of great utility, more especially to the heavier road vehicles. It is not a new form of brake, but is a new means of applying the existing brakes, and it gives the driver the option of braking in the ordinary way by the foot or hand, or of operating them as entirely power-operated factors.

The power is electrical and the whole equipment very simple. Current taken from the lighting battery, or from a special generator coupled to the Cardan shaft, energises an electro-magnetic solenoid supported on the underframe of the vehicle, and the movement of the core is transmitted to the brake shoes. A graduated series of resistances in the circuit enables the brakes to be applied as gradually as may be desired—the rate of application depending, as in tramcar braking, on the movement of the controlling switch.

The application may be to the foot-operated brake only, or to the hand brake, or to both sets combined. When the hand brake is electrically operated, the brake lever, with its ratchet and pawl, is not used, so that the brake is released on the opening of the switch.

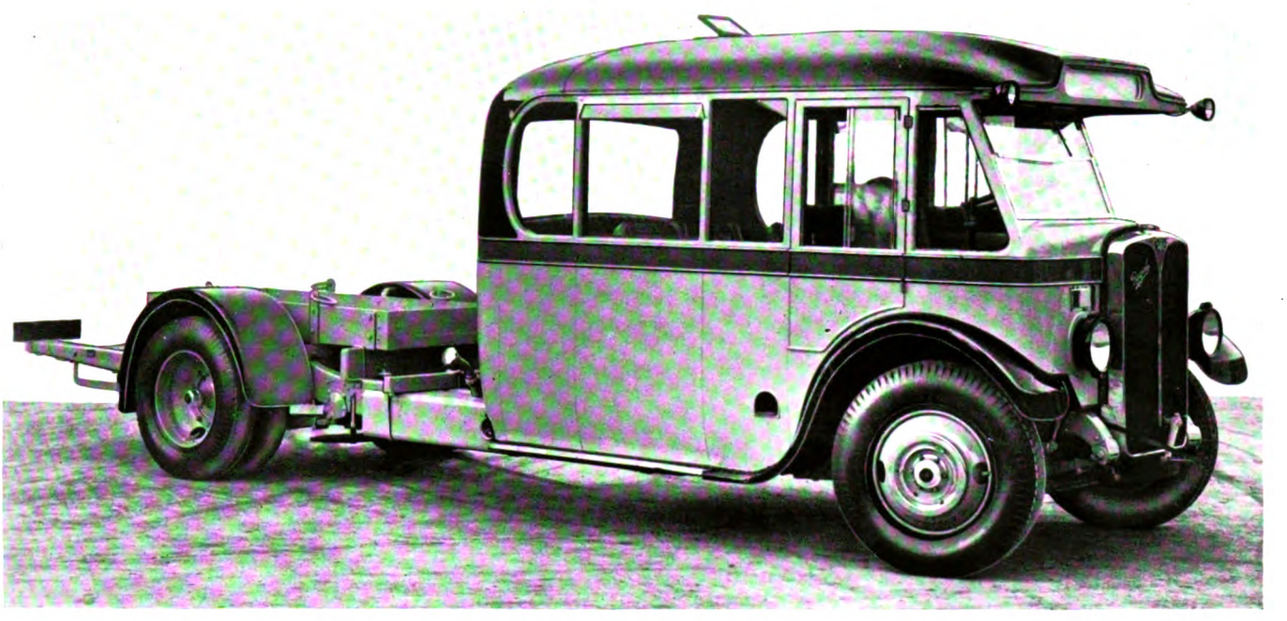
The controlling switch is placed on the steering wheel in the form of a light rim, within easy access of the fingers in any position of the wheel, and full braking force can be applied either gradually or quickly by the mere movement of one finger, and without removing either hand from the wheel. As the foot and hand levers are not interfered with, the brakes may be applied in the ordinary way at the option of the driver. As an alternative means of control, the resistances are cut out by the movement of the foot brake pedal with a simple contact switch operated on the steering wheel. When this switch is open the brakes are applied in the ordinary way, but when it is closed the foot brake immediately becomes a power-operated one, and may work in combination with the hand brake shoes.

Provision is made for very fine adjustment and, as the movement of the solenoid's core may be applied so as to cut out most of the ordinary brake pins and linkages, the risk of brake failure is correspondingly reduced. Current consumption is small, and the inventors state that the equipment can be fitted to any existing vehicle at very little cost

A.E.C. "REGAL" DEMONSTRATION CAR.

A novel type of body designed and constructed by Strachans, Ltd., of North Acton, as a demonstration car has recently been delivered to the Associated Equipment Company. It is mounted on the "Regal" chassis, and the vehicle is intended to be used for demonstrating the running qualities of this machine under various pre-determined load conditions.

As will be seen from the accompanying illustration the body, except as respects length, is built on standard lines with regard to height, width and general arrangement. It is constructed to seat seven passengers in the saloon, with the driver in the forward control position, and provides a considerable degree of comfort, while enabling the passengers to observe the movements of the springs and other parts of the chassis when under load and travelling at different speeds. For the purpose of this observation a large shaped window is placed at the rear of the saloon. Two full coach doors are provided, one on either side, each being fitted with drop windows and glass louvres, so that the windows can be lowered a little in wet weather without the rain penetrating to the interior of the saloon. Ventilation is further provided for by the fitting of a glass ventilator in the roof. The drop windows are of the "Strachan" patent type, constructed partly of metal and partly of wood. This is the latest model of the "Strachan" drop window and supersedes the all-metal type. All the other windows are fixed, except that at the rear of the driver, which is sliding.



Special Body for Observing the A.E.C. "Regal" Chassis under Load.

For the purpose of testing the carrying capacity and running qualities of the chassis, a tray is mounted over the rear axle in which weights can be placed to represent the desired load, and from the rear window of the saloon the behaviour of the chassis at different speeds and under varying road conditions can be noted.

TRAMWAYS AND LIGHT RAILWAYS ASSOCIATION.—The Journal of the Association for December records the decision of the Council to recommend that the name of the Association be changed to The Tramways, Light Railways and Transport Association. The subject has been discussed on several occasions during the last few years, and the Council now feel that the time has come when the name of the Association should more adequately represent the interests of its members, many of whom are now actively interested in motor and trolley omnibuses as well as in tramways. The Journal contains correspondence with the Ministry of Transport in regard to vestibule fronts on tramcars.

Digitized by Google

OMNIBUS AND COACH SECTION

OMNIBUS AND COACH SERVICES.

MUNICIPAL.

SEASON TICKETS.—The general manager of the Glasgow Corporation omnibuses has promised a deputation from the Ward Committees that he will endeavour to introduce a trial of weekly and monthly tickets.

SAFETY GLASS ON BIRMINGHAM OMNIBUSES.—Thirty covered-top omnibuses ordered by Birmingham Corporation from the A.E.C., with bodies by the Brush Electrical Engineering Co., will have windows of Xetal safety glass.

BOURNEMOUTH CLAIMS A TEN-MILE RADIUS.—The Parliamentary Bill promoted by Bournemouth Corporation for the running of trolley omnibuses along any tramway route and of motor omnibuses throughout the borough, also seeks authority to operate vehicles outside the borough within a radius of ten miles from the town hall.

A TRIPLE PARTNERSHIP.—Leeds Watch Committee has granted licences to the Yorkshire Traction Co. and Sheffield Corporation for omnibuses to ply for hire in the city in connection with the existing services between Leeds and Sheffield now operated by the West Riding Automobile Co. The service is to be run as a joint one.

EAST HAM'S UNUSED POWERS.—In a report submitted to Ilford Tramways Committee by the tramways manager, it was stated that East Ham Corporation tramways department had long possessed powers to run omnibuses, but had never exercised them. It was further reported that Walthamstow Council had decided to promote a Bill to obtain omnibus powers if the Ministry of Transport will not oppose it.

HULL'S VARIABLE EXPERIENCE.—A deficit of £71 was recorded on the municipal omnibuses for the half-year ended September 30 last. In 1928-29 there was a surplus of £2,127, and in 1927-28 £6,362. Experiments are being made with trolley omnibuses on suburban routes, and it is reported that they are operated at 12.82d. per mile, as against 14.64d. for the petrol omnibus and 15.38d. for the tramcar.

OMNIBUS REGULATIONS AT AYR.—On January 1 new conditions relating to omnibus licences came into force. On routes served by the tramways an excess charge of 1d. is made on the omnibuses with a minimum of 2d. Instead of all omnibuses being excluded from High Street and Alloway Street, vehicles with a seating capacity not exceeding 20 are now permitted to run in those thoroughfares and to use appointed stopping places.

PREDOMINANT MEANS OF TRAFFIC IN LONDON.—According to Mr. Frank Pick, the managing director of the London Underground Group, London is the only place in the world where the omnibus carries the greatest part of the road passenger traffic. More than half of such traffic is now carried by the London General Omnibus Co., which has five thousand vehicles and an annual mileage of 158,000,000. In 1856, when the horse omnibuses were started, they ran 9,000,000 miles.

INTER-DEPARTMENTAL HIRE OF OMNIBUSES.—Morecambe Tramways Committee has adopted charges of 7s. 6d. and 12s. 6d. per hour respectively for inter-departmental hire of 20 and 32-seat omnibuses. The lay-out for a central station on the Paulton Hall site has been adopted, and the surveyor is preparing plans for the erection of the requisite buildings. The committee has asked the manager to submit a statement of the prospective life of each omnibus, the annual loan charges, and the consumption of oil and petrol.

CO-ORDINATION AT PORTSMOUTH.—One result of the co-ordination agreement between the Southdown Motor Services and the Portsmouth Corporation is that the 6d. minimum fare on the company's omnibuses within the city has been abolished. Short-distance passengers are now using the Southdown vehicles as supplementary to the municipal omnibuses and tramways. The fares are arranged by the Corporation and payable to them by the company in return for a payment representing the running costs of the omnibuses within the city. The company has still liberty to run non-scheduled omnibuses outside this arrangement, but these are not intended for short distance riders, and on them a minimum fare of 9d. is charged within the city.

CONSUMPTION PER OMNIBUS MILE.—Reporting to Eastbourne Corporation Motor Omnibus Committee, on a suggestion that the issue of petrol and oil should be on the lines adopted in Government departments, the general manager has stated that the consumption of petrol per car mile varies in many ways, which are governed by varying conditions, such as heavy loads, variable weather, drivers', economy or otherwise, variation of carburation, the unnecessary running of engines at the termini when the omnibus is stationary, etc., but the average consumption per mile works out at over 6 m.p.g. If the records show that any omnibus is falling below this figure, a report is at once handed to the works foreman, whose duty it is to give the matter immediate attention.

COMPANY.

NEW OMNIBUSES AT BLYTH.—Licences for 25 new Leyland Titan top-covered omnibuses have been issued by Blyth Corporation to the United Automobile Services.

LONDON-WINDSOR DEVELOPMENT.—Highways, Ltd., 281, Regent Street, W.1, has inaugurated an hourly service between Oxford Circus and Windsor. The single fare is 2s. 6d. and period return 3s. 6d.

G.W.R. INTEREST IN BRISTOL TRAMWAYS COMPANY.—A statement was issued by the Great Western Railway Co. on January 1 that a financial interest has been obtained in the Bristol Tramways and Carriage Co., Ltd.

INSPECTIONS TO BE MORE FREQUENT.—Stoke-on-Trent Watch Committee has decided upon a more frequent inspection of omnibuses with a view to the elimination of alleged slackness by proprietors in the care of their vehicles.

NEW STATIONS FOR BOURNEMOUTH.—Omnibus and coach stations are to be constructed by the Bournemouth Motor Station, Ltd., in Christchurch Road, and by the Hants and Dorset Motor Services in The Square, Bournemouth.

REFUSALS BY FIVE COUNCILS.—The Ministry of Transport has held an inquiry into the refusal to grant licences to the Rhondda Tramways Co. by Merthyr and Cardiff Corporations, Mountain Ash and Pontypridd Urban Councils and Cardiff Rural Council.

AMALGAMATION IN THE NORTH-EAST.—It is stated that Robert Emmerson & Co., the Eastern Express Motors and the Reliance Motors became merged on January 1 in the United Automobile Services. In each of these undertakings the L. & N. E. Railway has a considerable interest.

NEW OMNIBUSES IN HANTS AND DORSET.—Permission has been asked of Bournemouth Watch Committee by the Hants and Dorset Motor Services to substitute six of the latest low-loading covered top omnibuses and three new 25-seat vehicles for those at present in use on the Lymington service.

A SERVICE CALLS FOR LARGER OMNIBUSES.—The Midland Red Omnibus Co. has decided to meet the needs of passengers between Dudley and Stourbridge by running double-deck omnibuses. The company's intention was brought to the notice of Dudley Watch Committee, but no action was taken.

TRADE UNION RATES OF WAGES.—Stoke-on-Trent Watch Committee has renewed until June 30 the licences of omnibus owners who are paying the recognised trade union rates of wages. Licences of those who had not notified the wages paid have been renewed for a shorter period, when the matter will be reviewed.

CONTROL OF FARES.—Replying to a question in the House of Commons, the Minister of Transport said that generally speaking he at present had no power to control omnibus fares. The Road Traffic Bill contained provisions which would empower the Traffic Commissioners to fix minimum or maximum fares.

RAILWAY INTEREST IN THE EAST KENT COMPANY.—Mr. S. E. Garcke, presiding at the 13th annual meeting of the East Kent Road Car Co., stated that now the Southern Railway had acquired a financial interest in the company, machinery was being devised for the use of the two systems of transport jointly. The railway company and the Tilling-B.A.T. would now each hold about one-third of the capital.

THE WELSH AMALGAMATION.—The directors of the Western Welsh Omnibus Co., which represents a combination of the South Wales Motors, Ltd., the Great Western Railway, the Eastern and Western Valleys, and Cridlands, Ltd., recently entertained the employees. Mr. A. Gray, general manager, stated that the old financial worries were ended, and they could look forward to obtaining the best possible omnibuses.

"NORTHERN GENERAL'S" PETROL BILL.—At a dinner to the inspectors of the Northern General Transport Co. at South Shields, Mr. H. A Stagg, the resident director and secretary, stated that the petrol bill for 1929 would be £18,000 higher than in 1928, when the petrol tax caused an addition of £24,000 to their costs. The fleet now numbers 330 vehicles, and a substantial number of new machines will be delivered in the spring.

Digitized by Google

OMNIBUS AND COACH SECTION

"LONDON GENERAL" COACH SERVICE EXTENSION.—Recently the coach service from Watford to Golders Green tube station by the London General Omnibus Co. has been extended via Hyde Park to the Victoria Embankment, near the Charing Cross end of the tube railway. The original service was inaugurated on October 2, at 15-minute intervals, and the extension adds greatly to the facility with which residents of a populous borough can reach the West End.

CHANGES IN OWNERSHIP.—Associated Bus Companies, Ltd., have informed Stoke-on-Trent Watch Committee that the company has been formed for the purpose of acquiring the business of members of the Associated North Staffs Bus Proprietors, who desired to sell. The new company asked that the various licences should be transferred to them. The committee agreed to that course, but informed the company that future proposals of this nature must be submitted for consideration before the transaction is completed.

CO-ORDINATION OF FARES AND TIME-TABLES.—Guildford Corporation has been informed that the Aldershot and District Traction Co., the Safeguard Coaches Co., and the Yellow Bus Co., operating services in the borough, have agreed to arrange their time-tables and fares so as not to clash. The fares are to be at the rate of 1d. per mile return and 1½d. per mile for single. The Aldershot and District Co. is to take off a number of omnibuses, but at rush hours all the companies will, when necessary, run duplicate services but on the scheduled times.

LONG-DISTANCE.

FROM WAKEFIELD TO BLACKPOOL.—W. Armitage & Sons, of Blackpool, have been granted a licence to ply in Wakefield in connection with an omnibus service between Wakefield and Blackpool. An application in Leeds has been refused.

ENCOURAGING A CHELMSFORD-LONDON SERVICE.—Mr. A. J. Mazengarb, of Goodmayes, having applied to Chelmsford Watch Committee for licences for a daily service between Chelmsford and Stratford, the committee offered to grant the application if the service is extended to Liverpool Street, London.

A NEW LEEDS-LONDON SERVICE.—Wakefield Watch Committee has granted an application from Underwood Express Services to ply in that city in connection with a service from Leeds to London. The committee has assented to a proposal by the Yorkshire Traction Co. to connect the Wakefield-Barnsley service through to Sheffield.

A SERVICE TO HARWICH.—G. Ewer & Co., of Leonard Street, E.C.2, have placed six new Leyland Tiger coaches on their existing services in the eastern counties and a new service to Harwich and Dovercourt. Two journeys each way are being made daily on the latter service, which at the London end starts from the Victoria Embankment.

PROPOSED MERTHYR-LONDON SERVICE.—Consideration by Merthyr Watch Committee of an application by Mr. E. Thomas, of 23, Eccleston Street, London, for licences for a daily service between Merthyr and London was adjourned for further information. Weymouth Watch Committee has refused licences to Mr. E. Thomas for a London-Weymouth daily service.

THE POPULARITY OF BOURNEMOUTH.—Probably no south coast resort has more regular long-distance services than Bournemouth. The Corporation has lately granted four additional licences to the Link Safety Coach Co. for its service between Bournemouth and the Midlands. Elliott Bros., Ltd., of Bournemouth, who operate to and from London and many of the northern towns, have lately purchased 37 chassis of the A.E.C., Daimler, Maudslay, and Leyland types. The bodies are being constructed by Duple Bodies and Motors, Ltd.

LONDON-BRIGHTON LICENCES.—Brighton Watch Committee has granted licences to the following firms for London to Brighton services: Underwood Express Services, East Surrey Traction Co., Link Safety Coach, and the Venture Transport, Hendon. The application of Mr. S. A. Watts for a licence for a coach service between Brighton and London was granted subject to the conditions applicable to such licences and the following special conditions: (*a*) That the vehicle operates only from the garage named in the application; (*b*) That it does not pick up or set down passengers in any part of the highway in the borough except with the express consent of the licensing authority; and (*c*) that the minimum sum of 3s. be charged for every single journey run. The Committee has informed Royal Blue Automobile Services that the council is unable to grant the application for licences for 70 or more vehicles but will license six vehicles to be used under the conditions set out above.

SOME RECENT ORDERS.

W. & G. DU CROS., Ltd., have received an order for motor bodies from the War Department.

DENNIS BROS., LTD., have been awarded a contract to supply a motor fire engine to Burton-on-Trent Corporation at £1,485.

PORTSMOUTH TRAMWAYS COMMITTEE has recommended the acceptance of the tender of A. & J. Main & Co. for the erection of an omnibus depot at Eastney.

BRIGHTON TRAMWAYS COMMITTEE has accepted the tender of Leyland Motors, Ltd., for the supply of four single-deck 32-seat omnibuses at £1,371 10s. each.

HANTS AND DORSET OMNIBUS CO. has accepted the tender of W. Hayward & Sons for the construction of an omnibus and coach station in the Square, Bournemouth.

ILFORD TRAMWAYS COMMITTEE has recommended the acceptance of the tender of the Brush Electrical Engineering Co., Ltd., for the supply of three tramcar bodies at £1,270 each.

MORECAMBE TRAMWAYS COMMITTEE has received sanction to the borrowing of £2,600 for the purchase of four Dennis omnibuses. The Committee has placed a contract for petrol with the Albion Petrol Co.

EDINBURGH CITY COUNCIL, on January 9, adopted the Tramways Committee's recommendation for ordering 24 Daimler omnibus chassis, 24 Cowieson bodies, and three Morris-Commercial "Dictator" chassis.

SHEFFIELD CORPORATION has ordered three Laycock four-gun washing plants for the tramway and omnibus depots. This is the sixth "repeat" order from the Corporation received by the Laycock Engineering Co.

KARRIER MOTORS, LTD., have adopted the Westinghouse vacuum servo brake for their 1930 programme, and an order has been received from them by the Westinghouse Brake and Saxby Signal Co., Ltd., for a large number of sets.

JOHN I. THORNYCROFT, LTD., recently supplied a fleet of omnibuses to the New Zealand Government Railways. The vehicles, which are now in service, each seat 32 passengers. The chassis is the B.C. forward control six-cylinder type.

BRISTOL TRAMWAYS AND CARRIAGE CO., LTD., have received a third order from Rotherham Corporation for three "Bristol" type B light passenger chassis. A "repeat" order has also been received from Doncaster Corporation for three similar chassis.

BRIGHTON WATCH COMMITTEE are installing semaphore traffic signals at Old Steine and Seven-dials at a cost of £1,400. The Committee has accepted the tender at £764 of the Brighton Lighting and Electrical Engineering Co. for a traffic signalling system at Old Steine.

SIX-WHEEL DOUBLE-DECK TROLLEY OMNIBUS FOR SOUTH AFRICA.—Clough, Smith & Co., Ltd., have received an order for their Karrier-Clough six-wheel, double-deck trolley omnibus for the Bloemfontein Municipality. This will be the first six-wheel trolley omnibus to operate in South Africa.

LIVERPOOL TRAMWAYS COMMITTEE has placed contracts as follows:—Six-wheel, six-cylinder omnibus chassis, Karrier Motors, Ltd., twenty; Guy Motors, Ltd., ten; John I. Thornycroft & Co., Ltd., ten. Four-wheel six-cylinder omnibus chassis: Vulcan Motor and Engineering Co., Ltd., ten.

COVENTRY WATCH COMMITTEE has accepted the tender of the Siemens and General Electric Signal Co., Ltd., at £1,550, for sets of signals for erection at road junctions, on condition that the signals should be returnable, without liability to the Corporation, if found unsatisfactory after three months' use.

KARRIER MOTORS, LTD., have delived to Halifax Corporation two "Chaser" 32-seat, forward drive type omnibuses with rear entrance. The body work by Hall, Lewis & Co., Ltd., of Park Royal, has been splendidly finished in maroon and gold, and the seats are upholstered in moquette to match the body.

CROSSLEY MOTORS, LTD., have just completed a repeat order for three of their 70 H.P. medium type rigid six-wheel vehicles for the Race Course Betting Control Board. These vehicles will be used together with the twelve Crossleys previously supplied for carrying accumulators and other equipment for use in connection with the Totalisators.

RUSSIAN PETROL FOR OMNIBUSES.—Birmingham is the latest Corporation to accept the price quoted for petrol by Russian Oil Products, Ltd. The requirements of the omnibus and other departments will exceed 3,000,000 gallons this year. This is the first time for many years that the Corporation has placed its whole order with one firm.

Digitized by Google

OMNIBUS AND COACH SECTION

THE GREAT WESTERN RAILWAY has placed a further contract with John I. Thornycroft & Co., Ltd., for twenty-three 4-ton and twenty 30-cwt. freight chassis. This increases to 274 chassis the orders received during the past year from the Great Western Railway. These comprise a wide range of 30-cwt. to 10-ton freight and several types of passenger chassis.

THE ASSOCIATED EQUIPMENT COMPANY, LTD., has received a contract from Thomas Tilling, Ltd., for one hundred 95 H.P. six-cylinder Regent double-deck omnibus chassis. Other orders include eleven Regent double-deck omnibuses for the East Surrey Traction Co., Ltd., and ten 95 H.P. six-cylinder Reliance vehicles for the Southern Vectis Omnibus Company of the Isle of Wight.

JOHN I. THORNYCROFT & CO., LTD., have received an order from Aberdeen Corporation for five 32-seat omnibus chassis, this being a fifteenth repeat order for Thornycroft vehicles. The Argentine North-Eastern Railway has ordered sixteen chassis of various types, most of them rigid six-wheelers. Four of the three-ton War Office subsidy type have been ordered by Allmey & Leyfield, Ltd., of Liverpool, and repeat orders include those from the Bristol Co-operative Society, W. B. Dick & Co., and Triplex Foundry.

RANSOMES, SIMS & JEFFERIES, LTD., of Ipswich, mention among other recent orders one for sixty double-deck, top-covered omnibus bodies for the East Surrey Traction Co., Ltd.; nine single-deck bodies from the British Electrical Federation; and a contract for Trojan van bodies for the Air Ministry. Messrs. Ransomes are also supplying five complete electric trolley omnibuses for Liége, Belgium, and have received a repeat order from Bloemfontein, where their trolley omnibuses have been running very successfully during the last few years.

SALFORD TRAMWAYS COMMITTEE has recommended the acceptance of the following tenders: Associated Equipment Co., Ltd., for six 32-seat six-cylinder "Reliance" model single-deck motor omnibuses at £1,265, amounting to £7,950, plus £476 for spares (total £8,066), and for one omnibus at £1,275 to replace a vehicle destroyed by fire; Dennis Bros., Ltd., for six standard model, 32-seat, six-cylinder single-deck motor omnibuses at £1,345, plus £437 for spares (total £8,507); three 50-52 seat standard model six-cylinder double-deck motor omnibuses at £1,772 each, amounting to £5,316, plus £437 for spares (total £5,753); Leyland Motors, Ltd., three "Titan" 50-seat six-cylinder double-deck motor omnibuses at £1,750 each, plus £556 6s. 6d. for spares (total £5,806 6s. 6d.).

MOTOR TRAFFIC NOTES.

LONDON STREET FATALITIES.—In the year ended September 1929, a total of 1,282 persons were killed in street accidents in the Metropolitan Police area. Only 44 of the fatalities were due to taxi-cabs, says the Cab Proprietors' Council.

A.A. PATROL ASSISTS OMNIBUS PASSENGERS.—During the recent floods a patrol of the Automobile Association on the Welshpool-Oswestry Road found an omnibus overcome by a rapidly rising flood. He waded through the water to the omnibus and carried each passenger on his back to safety.

STREET TURNTABLE FOR MOTOR CARS.—At the end of St. Helen's Place, Bishopsgate, a turntable has been constructed for motor vehicles. As the street is a *cul de sac* and very narrow, the turntable is greatly appreciated by drivers, who can easily push a car round by hand after placing it on the turntable.

A DRAWBACK TO THE SIX-WHEEL OMNIBUS IN PARIS.—Single-deck six-wheel omnibuses recently introduced in Paris give a large carrying capacity, but their length is not suitable for the narrow streets and sharp corners. Consideration is therefore being given to the possibility of re-introducing double-deck vehicles.

PRESS-THE-BUTTON TRAFFIC STOPS.—The London and Home Counties Traffic Advisory Committee recently sent a representative to Manchester to study the working of the automatic signal device that enables walkers on the pavement to stop the road traffic for 15 seconds. This press-the-button idea, it is said, helps parties of school children to cross the road. It may be tried near London schools.

AIR STARTING FOR PETROL ENGINES.—Compressed Air Starters, Ltd., 115, Old Broad Street, E.C.2, has been formed to work in Great Britain the patent Herzmark system of starting all sizes of petrol engines by compressed air. Sir Henry Segrave is chairman of the company. As the result of tests the starter was fitted to a Tilling-Stevens chassis shown at Olympia. One merit of the invention is that the air pressure can be restored in one or two minutes.

A DEVICE FOR CLUTCH AND BRAKE OPERATION.—What is described as a labour-saving and safety device for omnibus operation was lately tested on a White omnibus provided at Richmond, Va., by the Virginia Electric and Power Co. Without touching either the clutch or brake pedals, Mr. E. Govan Hill, the inventor, drove the vehicle over a hilly section of the city, shifting the gears and stopping it by means of his manually operated lever and button device. Officials of the company expressed themselves favourably in connection with the operation of the device.

PNEUMATIC TYRES FOR LONDON OMNIBUSES.—Scotland Yard authorities have directed that from January 1, 1930, all omnibuses submitted for licence in London must be provided with pneumatic tyres. It is only recently that pneumatic tyres have been permitted in the London area, but it is now the intention of the authorities to insist upon their use. The London General Omnibus Co. has about 200 omnibuses fitted with pneumatic tyres out of 4,500, but every omnibus as it goes in for overhaul is being fitted with air-inflated tyres. There is a 20 per cent. rebate in the tax for omnibuses that have pneumatic tyres.

LONDON AMBULANCE SERVICES.—The London County Council has taken over the extensive and admirably managed ambulance service of the Metropolitan Asylums Board, and the ambulance arrangements of the London Boards of Guardians, in consequence of the Act which abolishes poor law authorities. Reporting on the matter to the Council, the Public Control Committee states that the change renders it desirable to reconsider the present arrangements, under which the Council's fleet of street accident ambulances, for instance, are under the direction of the Fire Brigade Committee. The Committee advises that in the interests of good organisation, the direction of all these ambulance services should be placed in the charge of the Central Public Health Committee.

PARLIAMENTARY ROADS AND BRIDGES COMMITTEE.—On December 23 a deputation from the unofficial Roads and Bridges Committee of the House of Commons was received by Mr. J. H. Thomas and the Minister of Transport. The deputation asked that road works should be accelerated and that the Ministry of Transport should undertake the construction of certain bridges over railways and canals. The Minister of Transport replied that there were difficulties in relation to the department undertaking bridge building, but he was willing to assist the local authorities on a generous scale. Both Mr. Morrison and Mr. Thomas expressed disappointment that road work had not been started on the scale that they desired. The deputation undertook to stimulate local authorities in their districts.

EXPIRED MOTOR VEHICLE LICENCES.—During a hearing at Acton on December 11 it was stated that on Middlesex roads during the first fortnight in October it was found that 17,000 vehicles were being used with expired licences. It came to the knowledge of the authorities that vehicles were being used in many cases continuously during the fourteen days' grace allowed for taking out a new licence, and on the first of the following month the owners of these motors would apply for licences, stating in their declaration that the vehicles had not been used since the date of the expiry of the last licence. At Enfield police court on January 6, the solicitor to Middlesex County Council mentioned that 3,000 car owners were to be prosecuted for failing to renew car licences. In twenty cases heard at this court fines ranging from 10s. to £5 were imposed.

AIDS TO SAFETY ON THE ROADS.—Following upon experiments in 1926 and 1927 the Automobile Association introduced A.A. safety posts and A.A. reflex discs, which are supplied and erected on the basis that they show a red light on the nearside of the road and a white light on the offside, thus giving a clear indication as to the route to be followed by traffic, not only at night, but also when weather conditions create poor visibility. Early in 1929 the Minister of Transport provisionally approved expenditure on these posts as qualifying for classification grants where erected on Class 1 or Class 2 roads. The Minister of Home Affairs for Northern Ireland has recently circularised county surveyors as to the nature, use and value of these signs, stating that where erected they will rank for recoupment from the Road Fund on the usual prescribed basis. The Association has also received permission from the Postmaster-General to fix A.A. reflex discs to poles along the London-Holyhead Road.

Digitized by Google

THE
Tramway and Railway World

FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.
Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates—

FOR THE UNITED KINGDOM—Twenty-five shillings per annum.

FOR ALL PLACES ABROAD—Twenty-five shillings per annum. Postage to Canada, 6s.; to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS.

LONDON, JANUARY 18, 1930.

PROTECTION FOR STATUTORY UNDERTAKINGS.

Following precedents set by Parliament the numerous private Bills promoted this session to secure trolley omnibus powers contain clauses intended to give such protection as is permissible. In no application, except that of Glasgow, for powers of any description does it appear that a complete monopoly is sought. The plea in the case of Glasgow is that the municipal tramways extend in some directions many miles outside of the city; and it is urged that the Corporation should have the same right as is given to English boroughs, namely, protection for tramway services within their borders. That right was confirmed on a universal scale when powers were given to the railways to operate omnibuses. Protection in England takes two forms when licences are granted to omnibuses under the existing Road Act. Vehicles running to districts beyond the tramways can be debarred from taking up or setting down passengers on the tramway routes. A second method is the charging of higher fares on the omnibuses where the route parallels a tramway. Operators now seem to be adopting what appears to be the more satisfactory plan of applying through-running terms in these cases, the receipts being handed over to the tramway owners, who make an allowance for operating costs. Licensing in Glasgow is controlled by the magistrates, who are accused of paying no regard to the rights of the city's tramways and omnibuses. Thus the City Council can make out a strong case for the monopoly they are applying for. The protection extended in the Parliamentary Committee rooms to a trolley omnibus service gives exclusive right of operation and freedom from competition so long as an adequate service is maintained. It is doubtless that fact, coupled with the company's readiness to bear the cost of removing the tramways, that has led Torquay Corporation by 28 votes to three to give the Tramways Company a monopoly on the trolley omnibus routes which are to take the place of the tramways. The usual conditions applicable to omnibuses serving longer routes will continue to be observed. It is to be hoped that Hastings Corporation, at their meeting on January 31, will act as reasonably in the matter of the Hastings Tramways Company's Bill for powers to install additional trolley omnibus routes. In ignorance of the fact that Parliament does grant protection there is an agitation to induce the Council to oppose clauses in the company's Bill that seek to forbid competition over existing and proposed routes from omnibuses that were not licensed on November 20, 1926, and to ensure that protective conditions are attached to licences. These proposals constitute only a slight recompense for the company's enterprise in giving Hastings, St. Leonards and Bexhill an excellent trolley omnibus service.

CONFERENCE ON STREET ACCIDENTS.

LONDON CORONERS AND TRAMWAY PASSENGERS.

More than three hundred representatives of local authorities, Government departments and vehicular and other organisations interested in street traffic, on Tuesday and Wednesday last attended a second conference called by the Ministry of Transport, on the suggestion of the London and Home Counties Traffic Advisory Committee, to consider what steps could usefully be taken to reduce the number of street accidents.

The Minister of Transport, Mr. H. Morrison, who presided on the first day, emphasised the importance of the work that was being done to educate children in regard to traffic dangers, and said he hoped that the Road Traffic Bill would become law this session. The Bill had many safety aspects, and would do much to enable further steps to be taken for the prevention of accidents. Especially important was the provision enabling the Minister of Transport to publish the code of road conduct.

Mr. Oddie, of the London Coroners' Association, supported a motion calling for a definite test of skill and capacity as the qualification for obtaining a driver's licence, but Sir Henry Maybury, chairman of the London and Home Counties Advisory Committee, stated that that body had come to the conclusion that no test would be worth the trouble and irritation it would cause. The Committee also considered that medical tests were impracticable. They unanimously reached the conclusion that the best provision was the declaration of fitness proposed in the Road Traffic Bill.

The motion was not agreed to, and the same fate met a motion calling for a medical certificate. The Conference adopted a proposal by the Coroners' Association for crossing places to be defined on roads having tramways and refuges, at such places as might be agreed to by the Ministry of Transport in conjunction with the Commissioner of Police. Approval was expressed of proposals by Westminster City Council to increase the number of crossing places indicated by lines where vehicles should not be driven when traffic was held up for pedestrians. Subway construction was called for at dangerous junctions and when important new roads were laid out. Improved and more uniform systems of street lighting were advocated.

On behalf of the Coroners' Association, Mr. A. D. Cowburn proposed that the practice of passing stationary tramcars on the near side should be forbidden. Mr. Elliott, an Assistant Commissioner of the Metropolitan Police, said that the police looked with particular seriousness on any case where a driver tried to cut in between the kerb and a tramcar when it was loading or unloading passengers. There were, however, objections to a regulation such as that proposed by the resolution.

By 72 votes to 40 the Conference adopted a motion urging that speed limits should be retained for London, the mover being Mr. Oddie, on behalf of the Coroners' Association. The Conference referred to the Ministry of Transport a motion that when several omnibuses were stationary at a recognised stopping place no omnibus should be allowed to pull out before those in front had moved off. On the motion of Mr. C. J. Spencer, representing the L.G.O.C. and the London company tramways, it was recommended to the Ministry of Transport that cyclists should carry a rear light and that consideration be given to the provision of separate tracks for cyclists.

THE ROAD TRAFFIC BILL.

MUNICIPAL REPRESENTATIVES TAKE ACTION.

A joint meeting of the Association of Municipal Corporations and the Municipal Tramways and Transport Association will be held at Caxton Hall, Westminster, S.W.1, on Thursday, January 23, at 2.30 p.m., to consider the Road Traffic Bill and the restoration of Part 5 when the Bill comes before the House of Commons. This is the first occasion on which a combined meeting of the two Associations has been held, and it is expected that there will be a very large attendance. Part 5 provides for the extension of the powers of local authorities in respect of public service vehicles, and municipal transport authorities regard its omission as a very serious matter. They will undoubtedly make a strong effort to secure the re-insertion of the clause.

Digitized by Google

PROTECTION FOR TRAMWAY PASSENGERS.

DEMAND BY A TOWN'S MEETING AT MANCHESTER.

Manchester local government electors at a meeting on January 10 approved the Parliamentary Bill without alteration. Some opposition was directed against the clause intended to prohibit motorists and others from passing on the near side of a tramcar that is drawn up at a recognised stopping-place until the carriage way is clear of passengers entering or leaving the car.

No speaker who opposed the clause did so in the interests of pedestrians. It was urged that if the clause were adopted it would inevitably lead to motorists increasing their speed in order to pass tramcars before they came to a standstill. The main objections to the proposal were that the authorities already had power to deal effectually with motorists who drove to the danger of the public; that the proposed regulation would lead to an increased congestion of traffic and throw an unfair burden upon the commercial community, to which the majority of motorists belonged.

Coun. Isaac Brassington, chairman of the Transport Committee, admitted that the adoption of the clause might lead to some slowing up of traffic, but he reminded the meeting that about one million people used the Manchester tramcars every day, and it was the duty of the Corporation to consider their safety before the convenience of commercial motorists. He pointed out that the proposed clause had been adopted in Glasgow, Edinburgh, and other towns in Scotland, and that as a consequence the number of accidents had been materially reduced. It had been suggested, he said, that no decent motorist attempted under existing conditions to pass a tramcar which was being boarded by passengers. If this was so, he failed to understand how any decent-minded motorist could object to a regulation which was designed solely for the purpose of dealing with the "road-hog."

TRAMWAY EMPLOYEES' HOLIDAYS.

At the January meeting of Sheffield City Council, the Tramways and Motors Committee recommended (as stated in THE TRAMWAY AND RAILWAY WORLD of January 11) the adoption of the proposals of the Establishments Committee for the extension of the employees' holidays from eight to twelve days per annum at an estimated cost of £4,740. The Committee also recommended that the wages of certain vehicle builders be increased by 1d. per hour at an estimated cost of £1,333 per annum.

Replying to a question by Ald. Wilson, whether the increased holidays were in accordance with the recommendation of the Whitley Council, Ald. A. J. Bailey, chairman of the Tramways Committee, said that the increases would be paid out of the revenue. The holidays were above the number of days recommended by the Whitley Council, but in accordance with those given by certain other municipal undertakings. The extra holidays with pay would get rid of an anomaly.

Councillor Turner said that he was astonished at the increases, especially when they came after the estimates, in which they were not included. For the first time in the history of the tramway undertaking the Council would be asked to subsidise it with an amount approaching £10,000 or more. This was in the face of all promises made to users of the tramways that fares would be reduced.

Ald. Bailey replied that the Committee had no intention of asking for a subsidy, and they hoped in March to be able to reduce the long-distance fares, which would mean a reduction of income, but not a deficit. The undertaking would meet its obligations and be a financial success. The minutes were approved.

Bradford Tramways Committee has recommended that the annual leave period of the tramway employees shall be increased from eight days to twelve.

RAIL AND ROAD CO-ORDINATION.

"The Co-ordination of Transport" was the title of a paper read before the Institute of Transport on Monday last by Mr. Ashton Davies, of the L.M.S. Railway. Referring to the first co-ordination agreement between the railway and Sheffield Corporation, he said that by securing efficiency and proportioning the services to the real demand, a true co-ordination had been achieved of which the advantages were very apparent. The extensive arrangements completed with company omnibus operators would definitely tend towards the creation of a controlled monopoly in the sense recommended by the Royal Commission on Transport. Co-ordination in practice must lie largely in the revision of the existing arrangements in local detail, and the whole of the working would require to be reviewed from the new angle of co-operation.

Opportunities of economising in mileage would arise more frequently on the railways than on the roads, particularly on branch lines. Facilities for exchange of traffic between railway and road transport would be created. A problem to be settled was how to ensure that capital was not expended on the provision of transport in excess of requirements. To take traffic from the railway and pass it along the road was an injury to a public as well as to a private interest. If, by reason of that increased user of the road, additional capital was spent upon the widening or maintenance of the road, a double injury was caused for which the community some time would foot the bill.

Fall of Trolley Wire at Glasgow.—The trolley wire broke in two places in Glasgow on January 11, and caused short delays in the tramway service. The first break occurred shortly after 5 p.m., opposite the tramway offices in Bath-street. No one was injured.

MISCELLANEOUS NEWS AND NOTES.

New Omnibuses for Accrington.—Accrington Council has been recommended to purchase six Leyland omnibuses at a cost of approximately £1,330 each.

New Facilities at Cheltenham.—Cheltenham Watch Committee has granted ten omnibus licences to the Cheltenham and District Traction Co., for service in the borough.

Kerb-Side Loading.—Bradford tramways department is to alter the position of the track at Sunbridge-road so as to provide a kerb-side passenger-loading station at a cost of about £900.

The Institute of Transport at Glasgow.—Glasgow Transport Committee will give a reception to the Institute of Transport on their meeting in Glasgow in July, when Sir Josiah Stamp, the president, will preside.

Northampton Tramways.—In view of the heavy cost of reconstructing the Kettering-road section of the tramway track, Northampton Tramways Committee are proposing the substitution of an omnibus service.

Offices for Portsmouth Tramways.—Portsmouth Corporation Tramways Committee proposes to advertise for the appointment of an architect to prepare plans for the erection of the new tramway offices on the depot site at Eastney.

Free Passes at South Shields.—The members of the Corporation are to be given free passes on the South Shields tramways on the understanding that the passes are used for municipal business only. A free pass is also to be issued to the Mayoress.

South Shields Council, on the recommendation of the general manager, Mr. J. A. Baker, has decided to purchase two bogie cars from the Jarrow and District Electric Traction Company for the sum of £120 per car, including a number of motor parts.

Deepening the London Subway.—Kingsway subway will be closed on February 3 and the London County Council Tramway Service will be discontinued while the work of deepening the subway to permit of the use of double-deck cars is being carried out.

Trolley Omnibuses for Portsmouth.—Portsmouth Corporation is promoting a Bill to provide for the substitution of trolley omnibuses for certain tramways, with power to the Minister of Transport to authorise further trolley omnibuses within and without the city.

Liverpool Tramway Extensions.—The statutory meeting of Liverpool ratepayers approved of the Bill promoted by the City Council for tramway and electricity developments. The proposals include new tramway permanent way at an estimated cost of £28,196.

Middlesbrough and Stockton to Confer.—Middlesbrough Town Council has agreed, at a special meeting, to accept the invitation of Stockton to a further conference upon the proposal of Stockton Corporation to substitute motor omnibuses for the tramway service between North Ormesby and Norton.

Trolley Omnibus Proposals at Bournemouth.—At a meeting of Bournemouth Corporation, the town clerk stated that there was no proposal before the Council to adopt a system of trolley omnibuses, and before any steps were taken full reports would have to be made upon that system and upon the petrol omnibus system, and the whole question carefully considered.

Plymouth Rolling Stock Superintendent.—The position of rolling stock superintendent of Plymouth Transport Department having been vacated by the resignation of Mr. J. W. Eunson, the Committee proposes to advertise the post at a commencing salary of £400, subject to the Establishment Committee's allocating a grade for this position in lieu of the existing grade.

Glasgow Long-Service Employees.—Fifty long-service employees of Glasgow Tramways Department are to be entertained at dinner by the Transport Committee in honour of their long and faithful service. Among the officials are Mr. L. Mackinnon, the general manager, Mr. J. Wilson, the deputy manager, and Mr. R. S. Smith, the traffic superintendent. These officials have been associated with the undertaking since 1894, when the Corporation began the working of the tramways. Mr. P. J. Dollan, convenor of the Transport Committee, will present a long service medal to each of the veterans.

Trolley Omnibus Question at Hull.—So sure were the Hull Tramways Committee of securing approval for the clauses in the Parliamentary Bill providing for the introduction of trolley omnibuses that they had ordered the necessary poles for equipping the route and the chassis for the omnibuses. In November last the Committee decided to purchase the omnibuses, and tenders were invited for twelve chassis and twelve bodies. At a meeting of the Committee on December 17 the Traffic Sub-Committee was authorised to accept tenders without waiting for confirmation by the full Committee or the Council. The clauses have been rejected by the town's meeting but a poll is to be held.

Traffic Speed-up at Manchester.—Mr. R. Stuart Pilcher, general manager of Manchester Corporation Tramways, in an interview with a representative of the "Daily Express," alluded to new developments for a general speeding up of the city traffic. The Corporation has applied to the Ministry of Transport for a higher maximum speed for tramcars in Manchester. At present the low limit caused congestion and confusion in the streets, and they wanted to cure this and to see tramcars and motor vehicles alike moving at a reasonable pace. Tramcar stopping-places, too, were receiving a good deal of revision. During the past ten months they had done away with twenty Board of Trade stopping places, and were looking out for other places where reductions could be made without inconveniencing the public. A substantial reduction in the number of tramcar stopping places would go a long way towards the solving of Manchester's traffic problem. The Corporation was anxious to improve traffic conditions generally.

Digitized by Google

Cars for Road Officials.—The Highways Committee of West Riding County Council has recommended the purchase of fourteen cars for divisional road officials at the cost of about £4,100. Also the purchase of two 2-ton motor-lorries at £1,150.

Trolley Omnibuses Proposed for Derby.—The question of removing the tramways and introducing trolley omnibuses is being considered by Derby Corporation. A deputation recently visited Wolverhampton to inspect the trolley omnibus system there, and were shown the latest type of Wolverhampton transport vehicle—a low-loading six-wheel, double-deck omnibus.

Electric Tramcars for Mecca.—A "Times" correspondent at Jeddah states that motor traffic is being developed. In four years 1,200 motor cars and lorries have been brought to Jeddah for transport of pilgrims to Mecca and Medina. The Hedjaz Government is now considering two big schemes. The first provides for the installation or electrical plant midway between Jeddah and Mecca to supply both cities with electricity and the latter to run an electric tramway.

Extension of Walsall Garage.—Walsall Corporation has authorised expenditure of £3,750, to be met out of revenue, for an extension of the Birchills garage, including pressure-washing and petrolling plant, which will deal with incoming vehicles on arrival. The layout has been designed by the general manager, Mr. W. Vane Morland, and includes a novel arrangement for clearing snow from omnibus roofs. The greater part of the work is to be carried out by the Transport Department's own employees.

Reconditioning of Glasgow Cars.—Glasgow Transport Committee, on the advice of the general manager, Mr. L. Mackinnon, has decided to invite offers for the reconditioning of 300 more cars. The present programme will be completed in June next, and the 300 additional cars could be completed about September, 1931. It was stated that the public were extremely pleased with the re-equipped vehicles, and that passengers have been brought back to the cars from the omnibuses on the principal routes.

Sunderland Tramway Employees.—Owing to some rearrangements consequent on the speeding up of the Sunderland tramway services in accordance with the recommendation of the general manager, Mr. C. A. Hopkins, it is stated that the men have decided to consider taking a ballot vote to authorise drastic action. Following a meeting a deputation met Mr. Hopkins and urged that the matter should be referred to a special meeting of the Tramways Committee. Mr. Hopkins agreed to the suggestion, but added that he had no intention of withdrawing his scheme, which he regarded as essential to the successful working of the undertaking.

Salford-Prestwich Dispute Settled.—The settlement of the omnibus dispute between Salford and Prestwich was announced after a private conference at the Ministry of Transport inquiry at Salford on January 14. Mr. Atkinson, K.C., said that a settlement had been arrived at by which Prestwich Council would withdraw all their objections, and would consent to Salford Corporation running omnibuses in the Prestwich area. The terms of the agreement provide that Salford Corporation shall give a 7½-minute service between Manchester and Prestwich. If the latter obtain powers to operate an omnibus service, Salford will enter into a working arrangement.

Important Southern Railway Schemes.—The directors have authorised an expenditure of £4,300,000 on various new works for 1930. In addition to the recently announced electrification of the lines to Reigate, Redhill, Brighton and Worthing, the following extensions of electrically operated railway have been authorised: Dartford to Gravesend, 14 miles, £159,500; Wimbledon to West Croydon, 8 miles, £72,000; Twickenham to Windsor, 27½ miles, £366,000. The extension of the "door-to-door" railhead distribution transport arrangements necessitates the construction of fifteen 5-ton motor lorries, fourteen 2-ton lorries, and six 20-cwt. parcels vans, at a cost of £21,610.

Transport Question at Carlisle.—Carlisle Corporation has called in Mr. A. R. Fearnley, general manager of Sheffield Corporation Transport, to advise them in connection with tramway matters, and in regard to the whole question of transport facilities in the city. The cars are run by the Carlisle & District Transport Co., Ltd., which has had prolonged negotiations with the Corporation regarding the condition of the track. Mr. Fearnley has recommended that three or four of the largest companies operating omnibuses in the city should be approached with a view to amalgamation, and that one comprehensive company should take over all the services in Carlisle and the outlying districts by purchasing the interests of the numerous small owners. Mr. Fearnley further suggests that the Council should have representatives on the board of management. The General Purposes Committee has deferred detailed consideration of the report in view of the Road Traffic Bill of the Government.

Omnibus Competition at Bradford.—Bradford Corporation Omnibus Licensing Committee has received a letter from the City Tramways Manager, Mr. R. H. Wilkinson, in reference to the competition of omnibuses. Mr. Wilkinson, it is understood, suggested that a minimum fare of 6d. should be charged for passengers entering or leaving an omnibus within the city boundary. This would automatically reduce omnibus competition and lessen congestion. He also suggested a restriction in the number of licences granted in view of the fact that local services were sufficient to cater for all requirements in the area served by the tramways and trolley vehicles. The department was prepared to run express omnibuses if the public required them, under the conditions of a 6d. minimum fare. If the Licensing Committee agreed to these proposals, Mr. Wilkinson stated that it was his intention to approach the authorities of the out-districts for similar protection for tramcar and trolley vehicle services.

Super-Tools, Ltd.—Mr. C. W. Hill, managing director of The Tool Steel Gearing & Equipment Co., Ltd., informs us that that company has recently become associated with Messrs. Super-Tools Ltd., 31-33, Spencer-street, Westminster, S.W. The company specialises in tools and equipments for depots and garages. In future all inquiries addressed to Super-Tools, Ltd., will have the personal attention of Mr. C. W. Hill and Mr. A. Wilton Smith.

New Tramcars and Omnibuses for Manchester.—Manchester Tramways Committee has approved the report of the general manager, Mr. R. Stuart Pilcher, recommending that the lower saloons of another 100 tramcars should be fitted with upholstered transverse seats at a total cost of £10,000. Mr. Pilcher pointed out that 168 cars have or will shortly be fitted with transverse seats. The additional number he proposed to put through the works at the rate of two a week. "This type of car," he added, "is so popular that I think it would be in the interests of the department steadily to increase the number in daily service." The Committee has decided also to buy 30 new omnibuses at an estimated cost of £49,000. These are required to replace worn-out vehicles.

PERSONAL.

Mr. C. O. Silvers, general manager and engineer of the Wolverhampton Corporation transport undertaking, has been granted a maximum salary of £1,250 per annum.

Mr. C. W. T. Little is about to resign from the position of chief engineer to the British Electric Traction Co. He joined the British Electric Traction Co., Ltd., in 1889, as chief executive electrical engineer, and he has been intimately concerned with the engineering side of many electric light, power and traction companies associated with that company, both at home and abroad.

Mr. Hubert J. Webber, who for the past seven years has been chief rolling stock engineer, automobile and tramcar sections of the Yorkshire (West Riding) Electric Tramways Co. and the West Riding Automobile Co., Wakefield, has accepted the appointment of transport manager and engineer to Cerebos, the salt firm. Mr. Webber is a member of the Institute of Automobile Engineers and was associated with the Bristol Tramways & Carriage Co., Ltd., for over 20 years, passing through both the commercial and technical sides of that company and holding the position of maintenance engineer, automobile section, prior to his appointment with the Yorkshire (West Riding) Company.

Burnley Tramways Management.—The list of applicants for the position of tramways and omnibus manager of Burnley Corporation has been reduced to the following candidates: Charles E. Crossley, deputy general manager, Chesterfield Corporation transport department; Frank H. Crossley, deputy tramways and transport manager, Ashton-under-Lyne; Sydney Mitchell, senior assistant to general manager, Newcastle Corporation transport and electricity undertaking; H. B. Sharpe, deputy manager and rolling stock engineer, Rotherham tramways and omnibus undertaking; C. H. Stafford, deputy manager and general assistant engineer, Reading tramways department. There were thirty-three applicants.

Alderman Timothy Rushton, J.P., who was appointed chairman of the Leeds Tramways Committee in November last, died at Leeds on January 8. The end, which was due to heart failure, was quite unexpected, for the previous evening Alderman Rushton had attended a town's meeting to consider the new Corporation Bill. He was 55 years of age and was a Labour member.

Dr. S. Z. de Ferranti, a pioneer of electrical engineering in Great Britain, died on January 13 at Zurich, Switzerland. He was born at Liverpool in 1865 and was educated at University College, London. At the age of 18 he patented the Ferranti alternator. Dr. Ferranti was head of the firm of Ferranti, Ltd., of Hollingwood, Manchester, and in 1910 and 1911 he was president of the Institution of Electrical Engineers, which in 1924 conferred upon him its highest award, the Faraday medal.

FINANCIAL.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended January 15 amounted to £82,933, an increase of £3,265 compared with the corresponding week of last year. The route length was 166.29 miles, as compared with 165.78 a year ago. From April 1 (the commencement of the financial year) to January 15 (41 3-7 weeks) the total receipts were £3,476,609, an increase of £46,799.

Municipal Transport Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended December 28 give total receipts of £409,544, or £17,193 more than in the corresponding week of last year. The aggregate receipts for 39 weeks amounted to £16,093,229, an increase of £674,233 over the corresponding period of last year.

Tyneside Tramways Company.—At a meeting of the shareholders and mortgagees of the Tyneside Tramways & Tram Roads Company at Newcastle on January 14, resolutions were passed to enable capital to be raised for the purchase of omnibuses to replace the company's tramways. It was stated that the company intended to exercise the powers given by the new Act to abandon all of the tramways except those which are to be handed over to the Newcastle Corporation. The directors are satisfied that any possibility of a return to the shareholders must depend upon the satisfactory development of the omnibus service.

Digitized by Google

CONTRACTS.

A. & J. Main & Co., Ltd., of Glasgow, are supplying roller shutters and wicket gates to Portsmouth Corporation for the Eastney depot.

Portsmouth Tramways Committee has decided to obtain tenders for the supply of pneumatic tyres for omnibuses on mileage basis.

Manchester Electricity Committee has accepted the tender of the Chloride Electrical Storage Co., Ltd., for a replacement battery for an electric tower wagon.

The English Electric Co., Ltd., has received a contract to supply, deliver and erect for the Hastings Corporation switchgear of a rupturing capacity of 500,000 k.v.a., at £11,395. At the request of the Central Electricity Board the rupturing capacity was increased to 500,000 k.v.a. from 250,000, which would have been suitable had the Corporation undertaking remained independent.

Hackney Electricity Committee has recommended acceptance of the following tenders in connection with the 30,000 k.w. extension at the generating station: Boiler-house plant and building, Simon Carves, Ltd., £222,039; turbine-house plant, C. A. Parsons & Co., £105,484; switchgear, A. Reyrolle & Co., £77,900. The tender of the A.E.G. Electric Co., at £84,516, was the lowest for the turbine-house plant.

The Bristol Tramways & Carriage Co., Ltd., has received, among recent orders, the following: Norwich Electric Tramways Co., Ltd., three "Bristol" 4-cylinder, 4-wheel light passenger chassis; Merthyr Tydfil Corporation, four "Bristol" superbuses (type L.5 dual-purpose bodies); Newcastle (Staffs) Motor Co., Ltd., "Bristol" 4-cylinder, 4-wheel light passenger chassis. Each of the above orders is a "repeat."

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

Name.	Week ended	Latest Return. 1928-29.	1929-30.	+ or —	Aggregate. Wks.	1929-30.	+ or —
		£	£	£		£	£
Aberdare U.D.C.	Jan. 7	462	622	+ 160	40¾	24,140	+ 2,389
„ Motor Buses	„ 7	225	297	+ 72	40¾	10,369	+ 1,606
„ Total	„ 7	687	919	+ 232	40¾	34,509	+ 3,995
Aberdeen Corp.	„ 8	4,555	5,269	+ 714	32¾	163,402	+ 13,924
Ashton-u-Lyne Corp.	„ 4	814	881	+ 67	40	36,792	+ 1,247
„ Motor Buses	„ 4	432	457	+ 25	40	19,497	+ 2,704
„ Trolley Buses	„ 4	270	275	+ 5	40	11,295	— 693
„ Total	„ 4	1,516	1,613	+ 97	40	67,584	+ 3,258
Ayr Corporation	„ 11	414	448	+ 34	34	21,565	+ 1,281
Barrow Corporation	Dec. 21	580	543	— 37	38	22,939	— 3,145
„ Motor Buses	„ 21	276	346	+ 70	38	14,889	+ 6,703
„ Total	„ 21	856	889	+ 33	38	37,828	+ 3,558
Belfast City	Jan. 10	10,333	10,052	+ 719	40½	456,320	+ 78,240
„ Motor Buses	„ 10	819	1,266	+ 447	40¾	44,574	+ 32,432
„ Total	„ 10	11,152	12,318	+ 1,166	40½	500,894	+ 110,672
Birkenhead Corp.	„ 12	1,587	1,538	— 49	41	68,165	— 9,644
„ Motor Buses	„ 12	2,605	3,074	+ 469	41	147,202	+ 28,648
„ Total	„ 12	4,192	4,612	+ 420	41	215,367	+ 19,004
Birmingham Corp.	„ 7	25,831	27,155	+ 1,324	40	1,101,751	+ 15,766
„ Motor Buses	„ 7	10,688	14,295	+ 3,607	40	537,975	+ 93,890
„ Trolley Buses	„ 7	537	572	+ 35	40	22,707	+ 653
„ Total	„ 7	37,056	42,022	+ 4,966	40	1,662,433	+ 110,309
Blackburn Corp.	„ 8	1,717	1,762	+ 45	40¾	79,016	— 4,371
„ Motor Buses	„ 8	Nil	322	+ 322	9½	3,438	+ 3,438
„ Total	„ 8	1,717	2,084	+ 367	40¾	82,454	— 933
Bradford Corporation	„ 11	13,937	14,360	+ 423	41	609,953	+ 31,737
Brighton Corporation	„ 12	1,929	2,195	+ 266	41	108,699	+ 2,274
Burnley Corporation	„ 11	2,974	3,087	+ 113	...	...	...
„ Motor Buses	„ 11	603	703	+ 100	...	...	...
„ Total	„ 11	3,577	3,790	+ 213	...	...	...
Burton-on-Trent Cpn.	„ 12	413	879	+ 466	41	20,364	+ 3,251
Bury Corporation	„ 12	2,020	1,959	— 61	41	82,121	— 8,295
„ Motor Buses	„ 12	319	834	+ 515	41	23,944	+ 8,430
„ Total	„ 12	2,339	2,793	+ 454	41	106,065	+ 135
Cardiff Corporation	„ 11	6,722	7,623	+ 901	40⅞	318,304	+ 5,610
Chatham and District	Dec. 31	596	774	+ 178	52	59,760	— 6,360
Chesterfield Corp.	Jan. 13	1,922	1,988	+ 66	41	81,577	+ 3,075
Colchester Corp.	„ 15	433	574	+ 141	42	23,476	+ 4,206
Colne Corporation	„ 8	606	651	+ 45	41	29,459	+ 197
Coventry Corporation	„ 12	2,055	2,154	+ 99	41	88,169	+ 1,955
„ Motor Buses	„ 12	1,401	1,806	+ 405	41	67,750	+ 18,496
„ Total	„ 12	3,456	3,960	+ 504	41	155,919	+ 20,451
Darlington Corp.	„ 11	986	1,048	+ 62	40⅞	41,120	+ 1,079
Derby Corporation	„ 11	2,844	3,191	+ 347	41	134,389	+ 9,925
Dover Corporation	„ 11	304	372	+ 68	41	17,040	+ 394
Dundee Corporation	„ 7	3,286	3,588	+ 302	33⅞	117,864	+ 4,455
East Ham Corp.	„ 11	2,115	2,372	+ 257	40⅞	94,910	+ 4,372
Edinburgh Corp.	„ 4	14,123	15,025	+ 902	33⅛	488,884	+ 16,738
„ Motor Buses	„ 4	3,409	3,905	+ 496	33⅛	117,590	+ 13,131
„ Total	„ 4	17,532	18,930	+ 1,398	33⅛	606,474	+ 29,869
Exeter Corporation	„ 15	772	833	+ 61	42	36,207	+ 551
Glasgow Corporation	„ 11	40,276	44,524	+ 4,248	32	1,430,669	+ 6,466
„ Motor Buses	„ 11	4,641	71,20	+ 2,479	32	192,627	+ 105,384
„ Total	„ 11	44,917	51,644	+ 6,727	32	1,522,296	+ 111,850
Gloucester Corp.	„ 8	479	670	+ 191	40⅞	24,346	+ 1,598
Grimsby Corporation	„ 11	1,291	1,519	+ 228	41	60,083	+ 5,252
Halifax Corporation	„ 7	3,883	5,140	+ 1,257	40¼	190,013	+ 12,752
Huddersfield Corp.	„ 11	5,722	6,277	+ 555	41	263,591	+ 3,208
Hull Corporation	„ 11	6,148	6,245	+ 97	41	249,341	+ 1,650
„ Motor Buses	„ 11	1,280	1,547	+ 267	41	58,181	+ 7,680
„ Total	„ 11	7,428	7,792	+ 364	41	307,522	+ 9,331
Ilford Corporation	„ 11	1,431	1,536	+ 105	40⅞	61,772	+ 1,082
Ipswich Corp. Trol.Bus	„ 11	1,135	1,264	+ 129	41	53,269	+ 3,592
Isle of Thanet	„ 8	329	375	+ 46	1½	427	— 5
Kilmarnock Corp.	„ 11	420	509	+ 89	34½	16,642	+ 1,102
Lancashire Un.	Dec. 22	2,086	2,248	+ 162	50¾	115,062	— 6,628
„ Motor Buses	„ 22	3,825	4,574	+ 749	50¾	223,049	+ 35,890
Leeds Corporation	Jan. 11	17,809	19,476	+ 1,667	40⅞	804,943	+ 23,867
Leicester Corp.	„ 11	7,836	8,532	+ 696	41	347,771	+ 17,278
Lincoln Corp.	„ 11	930	928	— 2	41	38,301	+ 1,767
Liverpool Corp.	„ 11	27,864	30,459	+ 2,595	40¾	1,239,527	+ 19,203
London County Coun.	„ 15	79,668	82,933	+ 3,265	41⅜	3,476,609	+ 46,790
Luton Corporation	„ 8	330	394	+ 64	40¼	16,631	+ 952
Maidstone Corp.	„ 9	227	187	— 40	40⅝	8,025	— 2,902
„ Motor Buses	„ 9	221	359	+ 138	40⅝	12,963	+ 3,779
„ Trolley Buses	„ 9	300	342	+ 42	40⅝	12,522	+ 1,612
„ Total	„ 9	748	888	+ 140	40½	33,510	+ 2,489
Manchester Corp.	„ 11	32,932	35,080	+ 2,143	41	1,438,214	+ 8,265
„ Motor Buses	„ 11	4,179	4,877	+ 698	41	203,878	+ 30,689
„ Total	„ 11	37,111	39,957	+ 2,846	41	1,642,092	+ 38,954

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS—*Continued.*

Name.	Week ended	Latest Return. 1928-29.	1929-30.	+ or —	Aggregate. Wks.	1929-30.	+ or —
		£	£	£		£	£
Middlesbrough Corp.	Jan. 7	1,064	1,139	+ 75	40¾	46,144	— 413
„ Motor Buses	„ 7	447	603	+ 156	40¾	21,260	+ 3,134
„ Total	„ 7	1,511	1,742	+ 231	40¾	67,404	+ 2,721
Newcastle-on-Ty. Corp	„ 11	8,885	9,167	+ 282	41	408,345	+ 19,192
„ Motor Buses	„ 11	1,688	1,989	+ 301	41	83,111	+ 6,844
„ Total	„ 11	10,573	11,156	+ 583	41	491,456	+ 26,036
Newport Corporation	„ 4	698	811	+ 113	40	30,878	+ 1,930
„ Motor Buses	„ 4	1,684	1,816	— 132	40	67,875	— 3
„ Total	„ 4	2,382	2,627	+ 245	40	98,753	+ 1,933
Northampton Corp.	„ 10	1,476	1,186	— 290	40⅝	45,825	— 14,112
„ Motor Buses	„ 10	256	722	+ 466	40⅝	27,531	+ 14,964
„ Total	„ 10	1,732	1,908	+ 176	40⅝	73,356	+ 852
Nottingham Corp.	„ 9	6,185	6,329	— 144	40¾	266,959	— 10,461
„ Motor Buses	„ 9	1,991	2,946	+ 955	40¾	100,551	+ 22,897
„ Trolley Buses	„ 9	541	612	+ 71	40¾	24,310	+ 1,434
„ Total	„ 9	8,717	9,887	+ 1,170	40¾	391,820	+ 13,870
Oldham Corporation	„ 11	3,405	3,598	+ 193	42	150,629	— 15,892
„ Motor Buses	„ 11	1,756	2,039	+ 283	42	84,515	+ 25,893
„ Total	„ 11	5,161	5,637	+ 476	42	235,144	+ 10,001
Plymouth Corp.	„ 11	3,389	3,747	+ 358	40⅞	155,642	— 3,259
„ Motor Buses	„ 11	1,750	2,225	+ 475	40⅞	82,804	+ 12,188
„ Total	„ 11	5,139	5,972	+ 833	40⅞	238,446	+ 8,929
Portsmouth Corp.	„ 11	4,976	5,548	+ 572	41	268,378	+ 11,578
Preston Corporation	„ 8	1,566	1,655	+ 89	40¾	70,304	+ 934
„ Motor Buses	„ 8	421	505	+ 84	40¾	20,295	+ 2,507
„ Total	„ 8	1,987	2,160	+ 173	40¾	90,599	+ 3,441
Rawtenstall Corp.	„ 12	937	861	— 76	41	34,959	— 2,006
„ Motor Buses	„ 12	452	510	+ 58	41	21,470	+ 2,911
„ Total	„ 12	1,319	1,301	— 18	41	56,429	+ 905
Reading Corporation	„ 9	1,416	1,583	+ 167	41	62,819	+ 218
„ Motor Buses	„ 9	786	943	+ 157	41	37,993	+ 2,267
„ Total	„ 9	2,202	2,526	+ 324	41	100,812	+ 2,485
Rochdale Corp.	„ 11	2,751	2,700	— 51	...	118,527	— 12,058
„ Motor Buses	„ 11	1,214	1,608	+ 394	...	65,121	+ 9,718
„ Total	„ 11	3,965	4,308	+ 343	...	183,648	— 2,340
Rotherham Corp.	„ 13	2,397	2,714	+ 317	42	115,583	+ 9,268
Salford Corporation	„ 12	10,254	11,341	+ 1,087	41	461,683	+ 28,672
Sheffield Corp.	„ 11	19,274	20,998	+ 1,724	41	861,301	+ 26,563
Southampton Corp.	„ 8	2,972	3,407	+ 435	41	140,321	+ 7,175
„ Motor Buses	„ 8	574	884	+ 310	41	33,202	+ 8,862
„ Total	„ 8	3,546	4,291	+ 745	41	173,583	+ 16,037
Southend-on-Sea Corp.	„ 15	1,728	1,947	+ 219	40¾	102,397	+ 47
Southport Corp.	„ 11	1,353	1,501	+ 148	40⅝	70,405	— 88
St. Helens Corp.	„ 7	1,752	2,134	+ 382	40¾	83,059	+ 5,412
Sunderland Corp.	„ 12	2,219	2,317	+ 198	41	100,553	+ 3,652
Swindon Corp.	„ 1	619	958	+ 339	39⅝	32,381	+ 8,929
Wallasey Corp.	„ 11	1,793	1,187	— 606	40⅝	54,112	— 34,743
„ Motor Buses	„ 11	769	1,891	+ 1,122	40⅝	86,335	+ 51,251
„ Total	„ 11	2,562	3,078	+ 516	40⅝	140,447	+ 16,508
Walsall Corporation	„ 5	3,118	4,597	+ 479	40	138,568	+ 11,896
Walthamstow Corp.	„ 4	2,127	2,428	+ 301	40	98,013	+ 6,683
Warrington Corp.	„ 9	859	919	+ 60	41	36,679	— 1,114
„ Motor Buses	„ 9	416	489	+ 73	41	18,837	+ 3,142
„ Total	„ 9	1,275	1,408	+ 133	41	55,516	+ 2,028
West Ham. Corp.	„ 9	5,347	6,201	+ 854	40¼	248,236	+ 21,080
Wolverhampton Corp.	„ 5	Nil	Nil	Nil	40	Nil	— 15,958
„ Motor Buses	„ 5	2,503	2,756	+ 163	40	112,507	+ 16,779
„ Trolley Buses	„ 5	3,060	3,453	+ 393	40	135,175	+ 23,231
„ Total	„ 5	5,653	6,209	+ 556	40	247,682	+ 24,052
York Corporation	„ 8	901	991	+ 90	41	43,178	+ 97
„ Motor Buses	„ 8	319	523	+ 204	41	17,060	+ 3,871
„ Total	„ 8	1,220	1,514	+ 294	41	60,238	+ 3,968

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

Name.	Week or M'th.	Latest Return. 1928-29.	1929-30.	Aggregate. Wks. or *Ms.*	1929-30.	In. or Dec.
Anglo-Argentine	Jan. 14	£87,548	£85,839	2 *w*	£166,835	— £7,498
Brazilian Traction $	Nov.	3,698,213	4,145,850	11 *m*	45,366,904	+ 6,265,634
British Columbia $	Nov.	1,192,080	1,270,922	5 *m*	5,995,951	+ 373,718
Buenos Aires Lacroze	Jan. 12	13,265	12,222	28 *w*	320,406	— 29,055
Burma E. Sup. Co. Rs.	Nov.	66,905	62,191	4 *m*	249,852	— 25,126
Calcutta ... Rs.	Jan. 11	138,556	126,040	1¼ *w*	203,154	— 47,154
Cape Town	Dec.	32,709	30,332	...	...	...
Carthagena & Herrerias	Dec.	676	1,314	12 *m*	13,367	+ 277
Durban	Nov.	22,498	23,214	4 *m*	95,524	+ 2,777
East India	Dec.	3,670	3,721	5 *m*	19,982	+ 734
Kalgoorlie	Oct.	1,738	1,703	10 *m*	17,174	— 291
La Plata	Dec.	10,300	10,327	12 *m*	116,149	+ 2,604
Madras (2 weeks) Rs.	Jan. 15	48,790	49,351	2 *w*	49,351	+ 561
Para	Dec.	14,360	14,487	1 *m*	14,487	+ 127
Port Elizabeth ...	Dec.	9,830	9,115	...	...	...
Rangoon ... Rs.	Dec.	130,110	138,400	12 *m*	1,486,686	+ 8,290
Shanghai ... $	Dec.	321,970	345,415	12 *m*	4,073,322	+ 370,577
Singapore ... ...$	Dec.	111,000	129,000	3 *m*	388,000	+ 57,000
Winnipeg ... ...$	Nov.	553,186	597,391	11 *m*	5,993,875	+ 393,276

RAILWAY RECEIPTS.

2nd Week ended Jan. 12th.	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week.	Inc. or Dec. to Date.
G.W.R.	203,000	Nil	343,000	+ 1,000	546,000	+ 1,000	+ 16,000
L.M.S.R.	430,000	— 2,000	833,000	— 5,000	1,263,000	— 7,000	— 18,000
L.N.E.R.	295,000	+ 3,000	652,000	— 24,000	947,000	— 21,000	+ 5,000
S.R.	273,000	+ 13,000	101,000	— 5,000	374,000	+ 8,000	+ 18,000
Totals	1,201,000	+ 14,000	1,929,000	— 33,000	3,130,000	— 19,000	+ 21,000

ELECTRIC RAILWAYS.

Name.	Week Ended.	Latest Return. 1929.	1930.	+ or —	Aggregate. 1930.	+ or —
London Underground Common Fund Cos.	Jan. 11	272,000	305,500	+ 33,000	492,700	+ 48,500
Lond. & Sub. Group	„ 11	37,500	44,400	+ 6,900	72,100	+ 10,300
Metropolitan Railway	„ 11	35,900	37,000	+ 1,100	74,400	+ 2,600
Liverpool Overhead	„ 12	1,657	1,605	— 52	3,267	— 108
Mersey Railway	„ 11	5,060	5,246	+ 186	10,521	+ 346

Digitized by Google

THE
Tramway AND Railway World
FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.
Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates—
FOR THE UNITED KINGDOM—Twenty-five shillings per annum.
FOR ALL PLACES ABROAD—Twenty-five shillings per annum.
Postage to Canada, 6s.; to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS

LONDON, JANUARY 25, 1930.

FAIR PLAY FOR THE MUNICIPALITIES.

That the omnibuses clauses of the Road Traffic Bill which were deleted by the House of Lords will ultimately become law does not permit of doubt. It was useful, however, that municipal representatives should meet as they did on Thursday to assure the Minister of Transport of their support in the steps that he may take to secure the passing of clauses designed to place municipal transport on an equality with private undertakings. How seriously the municipal councils were affected by the vote of the Peers is shown by the fact that the protest meeting at Caxton Hall was the first combined assembly of the Association of Municipal Corporations and the Municipal Tramways and Transport Association. There was nothing of a political nature in the gathering, which may best be described as a demand for just dealing on a question that has long called for settlement. The matter came very near to a successful conclusion three years ago when the House of Commons failed by only five votes to accept a measure for granting to town and urban councils powers to run omnibuses without having to spend heavily on private bill legislation. On the instruction of last year's conference of the M. T. & T. Association, the executive of that body had arranged for a similar measure to be introduced in the House of Commons during the present month. Therefore the demand by over one hundred local authorities operating either tramways or omnibuses is one that cannot be disregarded without bringing the Legislature into discredit. Alderman T. Canby, the president of the Municipal Tramways Association, in his forcible speech, reported on another page, stressed the non-political aspect of the demand, and if further testimony on that point should be required it is to be found in Earl Russell's statement in the House of Lords that the Royal Commission on Transport had approved of the inclusion of Part V in the Bill. Indeed, it is easy to see that the just concession to the municipalities is necessary to the working of the scheme of area licensing commissioners set up by Part IV. Unless all operators are placed upon an equal footing the municipal undertakings would be shut in and gradually extinguished. There can be no justification for rendering practically useless the sum of nearly £100,000,000 of the ratepayers' money which has been invested in the provision of public passenger transport. A municipality desirous of running omnibuses even within its own borders at present has to endure much delay and to pay heavy costs in order to obtain the necessary Parliamentary powers, disadvantages that private owners do not encounter. If for no other reason than to remedy this injustice Part V is needed.

ROAD TRAFFIC BILL IN THE LORDS.

PART V AND THE HOUSE OF COMMONS.

In the House of Lords on Tuesday, Lord Parmoor said the Report stage of the Road Traffic Bill would be resumed on the following day. The Government did not intend to raise again the question of municipal trading which arose out of the Bill, but it would be raised in the House of Commons.

On Wednesday Viscount Cecil moved an amendment to Clause 7 to provide that the penalty of imprisonment shall be imposed, except in special circumstances, on any person who drives after he has been disqualified from doing so. On Clause 11 (reckless and dangerous driving) the House adopted an amendment by Earl Howe that a driver convicted of such offence shall be liable to four instead of three months' imprisonment, the object being to give the benefit of trial by jury.

On Thursday Clause 18, dealing with the limitation of time during which drivers of certain vehicles may remain continuously on duty, was agreed to with certain alterations.

An amendment was adopted to provide that in case of an accident involving bodily injury, the authorised insurer should be required to pay the expenses incurred by any hospital for treatment of injured persons to an amount not exceeding £25 for each person.

TRAMWAYS AND LIGHT RAILWAYS ASSOCIATION.

A meeting of the members of the Tramways and Light Railways Association will be held at Caxton Hall, Westminster, S.W., on Tuesday, February 18, at 2.30 p.m., to consider a resolution that the name of the Association be changed to the Tramways and Light Railways Transport Association. In recommending the alteration, the Council say that recent developments in the transport industry have brought about changes in the composition of the membership of the Association, that certain companies have, or are about to convert their tramways into trolley omnibus systems, and that several are becoming statutory omnibus undertakings. The change of title has also been rendered advisable owing to a noticeable increase in the manufacturing and supply sections of the Association's membership. The existing articles of the Association make full allowance for these changes, but the Council nevertheless feel that the proposed title will more fully cover the duties and functions of the Association; and the desire that the change should be made was generally expressed by members at the congress held in Sheffield last June.

ANNUAL CONGRESS.

The annual congress will be held at Hastings from June 11 to 13. The selection of Hastings is due to the recent introduction of the trolley omnibus system. The Hastings Tramways Company has six-wheel vehicles of the latest type, and steep gradients in the town present a severe and interesting test which the braking equipment of the omnibuses has successfully surmounted.

TRAMWAY PAVING IN AUSTRALIA.

Mr. P. J. Pringle, general manager of the Electric Supply Company of Victoria, in a letter to the Tramways and Light Railways Association, published in the Journal of that Association for January, says that the Melbourne Electric Supply Company providing the Geelong Tramways were the first to propose that the maintenance of tramway paving should only extend nine inches on each side of each rail. This agreement was entered into with the Geelong Tramways some eight years ago, and Mr. G. G. Joppins, who was then manager, is to be congratulated upon being the first to obtain such a revolutionary change and one so eminently fair. The tramways, adds Mr. Pringle, have suffered too long under the iniquitous system of maintaining tramway paving under conditions which existed in the horse-driven days.

The Victoria State Electricity Commission and the Electric Supply Company of Victoria recently had a conference with the Ballarat and Sebastopol Councils, when a similar arrangement covering the special paving maintenance clause referred to above was made. These are the only three tramways in Australia which have this provision.

Free Passes for Leeds Councillors.—In accordance with the recent decision of Leeds City Council, free passes on the tramcars and omnibuses have been issued to 68 aldermen and councillors. The passes, which are valid from January 17 to October 31, 1930, are made of green leatherette, and resemble a railway contract. Stamped on the outside, in gilt, is the city coat of arms, with the words: "Leeds City Tramways and Transport Department. Free Pass. Member of the City Council." One half of the pass bears the name of the holder and the signature of Mr. R. L. Horsfield, the general manager.

Digitized by Google

THE ROAD TRAFFIC BILL.

JOINT MEETING OF TWO MUNICIPAL ASSOCIATIONS ASKS FOR REINTRODUCTION OF PART V.

A joint meeting of the Association of Municipal Corporations and the Municipal Tramways and Transport Association was held at Caxton Hall, Westminster, on Thursday afternoon to consider the Road Traffic Bill and the restoration of Part V when the Bill comes before the House of Commons.

Alderman C. W. Beardsley, Lord Mayor of Sheffield, presided, and there was a large attendance, including representatives from practically all local authorities concerned in road transport.

After a lively discussion it was unanimously resolved that "representation should be made to the Minister of Transport urging the Government to reintroduce the provisions of Part V of the Bill in the House of Commons so as to give the House of Lords an opportunity of reconsidering their decision." The proceedings were private, but a report of the remarks of Alderman Thomas Canby, J.P., the president of the Municipal Tramways and Transport Association, was issued for publication.

Alderman Canby said :—

We welcome this meeting. It is evidence of the widespread interest and concern in the subject we have now to consider. It is no ordinary event that has brought together the representatives of these two Associations. It is the first joint meeting that has been held during our twenty-nine years' history.

On December 18, the House of Lords, with 35 members present, rejected Part V of the Road Traffic Bill by a majority of 13, not on its merits by any means, but because of the fear of the extension of municipal enterprise. Lord Brentford, who moved its rejection, said : "Those who agree with municipal trading will vote for that Bill. Those who disagree *in toto* with all forms of municipal trading will disagree with it."

It seems to have been forgotten that during the last Parliament a large number of local Acts were passed which conferred road transport powers on local authorities, or the extension of them, both inside and outside their areas.

It is material to remember that the rejected Part V has received the unqualified blessing of the Royal Commission on Transport, of which Sir Arthur Griffith-Boscawen is the chairman.

The issue raised is easily stated. It brings us up against a grave menace to important interests of a large number of municipal authorities in England, Scotland, and Wales, nor is the issue in any way political. All parties on our town councils are of one mind about it.

The Minister of Health recently said in the "Foreword" to the first issue of "The Municipal Review" : "The country needs strong representative associations. Sometimes they may be a thorn in the flesh of a Minister with difficult legislation before him, but occasional thorns may be salutory even in the troublesome path of a Minister, and in any event the influence of associations is an integral and necessary part of good government in this country."

We have no desire or design to push thorns into anybody, and that is why we object to the opposite process of having thorns pushed into us.

So far as licensing powers of motor omnibuses are concerned, the Road Traffic Bill proposes a great reformation by substituting traffic commissioners in large areas for local authorities—a reform which was not opposed in the House of Lords, and has met with remarkably little opposition generally.

Many local authorities have spent large sums of money, in the total approaching £100,000,000, upon their passenger-carrying services, including some millions for motor omnibuses. These powers have been obtained by means of local Acts without Parliamentary objection. Such powers have been obtained piecemeal at great cost over many years with the approval of all parties in the State.

One of the results of Part V would be to put an end to the waste of public money in an extravagant system of private bill legislation, a system which has cost British local authorities over £700,000 for transport powers alone. You all know that we cannot extend our transport systems without going to Parliament, even to the extent of a mile, and not even for our own housing schemes, for example. Only last year, the Leeds Corporation was taken to the High Court for exceeding one of its statutory omnibus routes by 40 yards, which was, in fact, necessary for the purpose of a turning circle. We cannot even change one system for another without incurring considerable expense in obtaining a local Act for that purpose. The greatest and oldest municipal corporations, as well as the youngest, have been, and are, treated like children in an elementary school in this matter. It is surely time to claim the right to a fuller life in a bigger world, in view of our knowledge of local conditions, our experience of administration, and, most of all, at our own cost.

Private passenger transport interests have always held a great advantage over those of the community. For instance, they are free from Parliamentary control. Their numerous appeals against the decisions of local authorities in respect of motor omnibus licences to the Minister of Transport have, in many cases, served to emphasise their resistance to conditions less onerous than those imposed upon local authorities. It is intolerable that we should continue to occupy a position of inferiority, and now have that position fastened upon us apparently once for all.

Our protest against the rejection of Part V is not a protest against private enterprise. It is, however, an emphatic objection to inequality and privilege.

Under Part V the transport services of local authorities would be limited. It proposes that "the traffic commissioners for any area shall, in considering whether to grant or withhold their consent to the running by a local authority of public service vehicles on any road outside the authority's district, have regard to the extent to which the requirements of the authority's district will be served thereby, either directly or indirectly . . . "

It is quite true that licences for motor omnibuses of considerable value have been freely granted for some time to private operators. Many of these licences have been recently sold wholesale and absorbed by a sort of commercial big-brotherhood movement. They were frequently granted on the plea of "let 'em all come," and that competition was good in itself. They are now being purchased or absorbed on the entirely opposite principle that competition is destructive and uneconomical, and the operators entrench themselves behind these licences and claim goodwill in them.

May I invite you to visualise the position which would be created if the Road Traffic Bill was in full swing, particularly without such protection of municipal transport interests as Part V may contain ? No public service vehicle would then be permitted to run without a road service licence. Obviously, the country would be partitioned for road transport purposes. There would be an immediate scramble to stake out transport claims within each area and every part of it would be speedily appropriated and annexed. Local authorities would be, apparently, shut up within the limited compounds of their existing powers. One inevitable result would be no further extension of municipal road passenger services, either by private legislation or otherwise, except by the purchase of the very licences that have been given away to private companies and persons.

It is for these reasons that we meet at a crisis in the history of municipal transport. We can foresee great obstacles placed in the path of reasonable development and expansion. Our fate may be sealed, and unjustly sealed, by the arbitrary action of a few members of the House of Lords, unless we protest with vigour and emphasis and effect, and secure the restoration of Part V to the Bill.

We cannot, on behalf of those we represent, consent to the subordination of public to private interests in a service with which, because the public streets are a necessity to it, and are in fact its permanent way maintained at public cost, every ratepayer is financially and compulsorily concerned. We put our claim as high as this, and it is a reasonable one : equality of service, equality of opportunity within the limits I have referred to, and, of course, equality of obligations.

For my part, I believe in the harmonious progress and development, upon economic lines, of the road passenger transport business in conjunction with our neighbours, whether they be municipal or company. I object to the exploitation of a great public and necessary service by private interests, and claim, on behalf of the Association of which I have the honour to be president, conditions approximating fair play in that field.

I have to urge with all the strength of which I am capable, that Part V should be restored, so that the traffic commissioners may not be hampered, in considering road service licences, by relatively narrow limits, but should be in a position to consider applications for all such licences with due regard to the interests of local authorities.

L.C.C. TRAMWAY MATTERS.

SAFETY OF TRAMWAY PASSENGERS.

At the first meeting of the London County Council after the recess on Tuesday last, the Special Committee on Traffic reported upon the conclusions arrived at by the London and Home Counties Advisory Committee on Traffic on the subject of the safety of tramway passengers. For the following reasons the Advisory Committee did not favour further powers being obtained : (1) the police have sufficient power under the Motor Car Act, 1903 ; (2) to prevent the passing of stationary cars on the near side would result in traffic being greatly obstructed ; (3) there would be a strong tendency for vehicles to pass the tramcar on the off-side ; (4) there would be temptation to race a tramcar to a stopping place in order to avoid having to pull up ; and (5) drivers of following vehicles cannot always know when a tramcar is going to stop. The Advisory Committee's report gave no details of the very full information which they had received from Glasgow on the working of a by-law there. The Special Committee add that they were advised that the by-law operates in Glasgow most satisfactorily, and they have therefore asked the Minister of Transport to furnish the Council with the information which was before the Advisory Committee, and to indicate what other peculiar characteristics of London traffic have convinced the Advisory Committee that similar measures for London would not be an advantage.

TRAVELLING FACILITIES FOR MEMBERS.

The General Purposes Committee and the Highways Committee presented a joint report on the suggestion that members of the Council should be allowed free transport on the tramways to and from their constituencies or for the purpose of the Council's business. On the understanding that the cost of any privilege granted should not be borne by the tramways undertaking, the Highways Committee had no observations to offer on the suggestion. The General Purposes Committee decided that no great advantage would result from adopting the suggestion, and on general grounds they advised the Council to take no action.

Digitized by Google

MISCELLANEOUS NEWS AND NOTES.

The Institute of Transport.—The tenth annual dinner of the Institute of Transport will be held at the Hotel Cecil, London, on March 12, at 7.30 p.m.

Charing Cross Bridge Bill.—The Westminster City Council on Thursday decided to present a petition against the London County Council (Charing Cross Bridge) Bill.

Chester Corporation Transport.—The City Council has confirmed the resolution of the Transport Committee altering the title of the Department to the Transport Department. The manager (Mr. W. H. Ellis) is now styled the general manager.

Brighton Bill Dropped.—Brighton Town Council decided on Thursday not to take a poll of the ratepayers on the question of the Bill which the Corporation desired to promote in Parliament. The Bill included certain powers relating to tramways and omnibuses.

Hastings Tramway Company's Bill.—In addition to seeking powers for additional trolley omnibus routes, the Bill of the Hastings Tramways Co. includes provision for running petrol omnibuses in prolongation of, or connection with, existing or new trolley omnibus services.

First-aid Outfits at Nottingham.—A useful innovation is the placing on the trolley omnibuses and tramcars of the Nottingham Corporation of First-aid outfits. Only a few vehicles have so far been equipped, but it is anticipated that similar outfits will be placed on all the vehicles.

Post Boxes on Nottingham Cars.—Posting boxes are now attached to late tramcars and omnibuses on 14 routes in the Nottingham area. The boxes are on the cars from Monday to Friday, and are fixed on the rear platform. They are distinguished by an indicator at each end of the vehicle, the postage car being shown in red.

Plymouth Transport Workers' Wages.—The Tramways Transport Committee of Plymouth City Council has given instructions that wages shall be stabilised according to district rates and conditions. The instructions will involve a reduction in pay in certain cases, but there will be a net estimated additional cost of £2,710 per annum.

Proposed Sheffield Tramway Extension.—It is proposed that the Ecclesall tramway route should be extended about a mile and a half beyond the present terminus at Silver Hill. Beyond this point the population of the district is increasing rapidly, and it is anticipated that the Tramways Committee will consent to the extension of the line.

Bradford Municipal Omnibus Service.—Bradford tramways department proposes shortly to make a special effort to check the loss of receipts on the Baildon Bridge section which has been caused by omnibus competition with the tramways. Under the new Provisional Order the department will be able to start an omnibus service to Baildon Bridge.

Bournemouth Corporation Bill.—Bournemouth Road Powers Committee has approved the Corporation's Bill for the extension of the boundaries to include the parishes of Kenson and Holdenhurst. If the extension is authorised the present area of the town will be nearly doubled. The proposals provide for the running of trolley and petrol omnibuses in the borough.

Lancashire County Council is proceeding with the Bill for the formation of a Traffic Board and Area Committee for the purpose of securing control of the licensing of public service vehicles, the regulation of routes, time-table, stopping places, etc. The Area Committee of four would be composed of representatives of the local authorities and the county borough councils in the four areas respectively.

Central Electricity Board Orders.—Sir William Walker, a member of the Central Electricity Board, and chairman of Manchester Corporation Electricity Committee, speaking at Manchester on January 9, said that the Central Electricity Board had already placed orders with British firms to the value of £10,600,000 and additional orders were about to be placed. A new scheme would be ready in a week for South West Wales.

Express Omnibus Service for Bournemouth.—Mr. I. Bulfin, engineer and general manager of Bournemouth Corporation Tramways, submitted to the Tramways Committee a detailed report on the express omnibus services which are shortly to be inaugurated. Its purpose is to meet the complaints of tramway passengers in outlying districts that for them a certain amount of time was wasted at stops. At Manchester, where a similar system is in use, the omnibuses only stop at the main fare stages of the tramways, and the omnibus fare is double the amount for the same distances on the tramcars. There will be a minimum fare by the omnibuses of 1½d., and no special fares of any kind will be conceded. Thus there will be no workmen's, children's or cheap return fares. The express services will be provided by twelve 32-seat low-loading omnibuses.

Manchester Employees.—The difficulties which threatened to result in a strike were adjusted on January 19 after a consultation between Mr. R. Stuart Pilcher, general manager of Manchester Corporation Transport, and a deputation representing the Transport and General Workers' Union. After the Conference, Mr. Pilcher stated that the deputation was concerned with the dismissal of five cleaners, whose services have been dispensed with owing to the introduction of sand-drying apparatus, which had reduced the amount of labour required. As a way out of the difficulty he offered to give them temporary work in the place of men who were sick. Another question raised by the deputation was that there were a number of trolley-boys more than nineteen years of age who were qualified to act as junior guards, but for whom there were no vacancies at the moment. It has been arranged that a number of these boys shall be taken on as opportunities occur.

Glasgow Boiler Contract.—Glasgow Corporation having proposed to give an English firm (John Thompson Water Tube Boilers, Ltd., Wolverhampton) the contract for boilers required for Pinkston tramway power station, a public protest meeting was held in the Central Halls by the National Party of Scotland on January 16. Councillor J. M'Skimming, after outlining the history of the boiler contract, said he was concerned to see Scottish industry remain in Scotland, and that the impression should not get abroad, "Don't come to Glasgow if you are an industrialist."

London Subway Enlargement.—For about a year from February 2 the Kingsway tramway subway of the London County Council will be closed in order that it may be enlarged to take top-covered double-deck cars. Since its opening in February, 1906, the subway has linked north and south London by means of the single-deck cars, which are unprofitable. These cars are now to be converted into double deckers. While the subway is closed, Pullman double-deck cars will run between Highbury and the Bloomsbury end of the subway, the route having practically a 24-hour service, except on Saturdays. Transfer tickets at the midday fare of 2d. will be issued for passengers alighting at Farringdon-road, Holborn or Bloomsbury to complete the journey on an Embankment car to Westminster, the County Hall and Christ Church. The tramways department's folder, containing the foregoing announcement, states that the L.G.O.C. will run a frequent connecting service of omnibuses to Charing Cross, via the Strand and Northumberland-avenue on the forward journey, and via the Embankment and Temple Station on the return journey, at 1d. fare each way.

PERSONAL.

Mr. C. F. Ford, of Birkenhead, has been appointed works foreman at the Chester Corporation Transport Depot. There were 61 applications for the position.

Mr. J. E. Dobson has been appointed tool steel specialist and expert demonstrator for Great Britain to Edgar Allen & Co., Ltd., Imperial Steel Works, Sheffield.

Mr. H. W. Laing has been appointed manager of the Mansfield Tramway Company in succession to Mr. R. F. Dixon, who has gone to the Oxford Motor Services. Mr. Laing has been manager of the Lytham St. Anne's Corporation Tramways during the past six years.

Mr. R. F. Dixon, late general manager of the Mansfield and District Tramways, Ltd., has been presented with a gold watch by the members of the employees' social club, which he founded nine years ago. Mr. H. Coleman, traffic superintendent, made the presentation.

Mr. Robert Woodward, chairman of Edgar Allen & Co., Ltd., has retired from the board of directors. Although he is still energetic at the age of 86, Mr. Woodward considers that he cannot be in such active and close touch with the business as is desirable, and the board has accepted his resignation with regret. For forty years Mr. Woodward has served the firm, his connection with it having begun in 1890, when he went into partnership with Mr. Edgar Allen. In dealing with technical problems, he came to be looked upon as a stimulating guide, but the outstanding feature of his work was the enterprise which he imparted to the task of seeking and developing overseas trade.

Mr. Samuel White, who was head of the firm of George White and Company, of the Bristol Stock Exchange, and chairman of the Bristol Tramways and Carriage Co., Ltd., the Bristol Aeroplane, and other companies, left £297,490, with net personalty of £267,252. In his will, the late Mr. Samuel White expressed the wish that his nephew, W. G. Verdun Smith, should follow him as chairman of the various companies with which he was associated. The request has already been complied with so far as the Bristol Tramways and Carriage Co., the Imperial Tramways Co., and the Western Wagon and Property Co. are concerned.

FINANCIAL.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended January 22 amounted to £82,753, an increase of £2,928 compared with the corresponding week of last year. The route length was 166.29 miles, as compared with 165.78 a year ago. From April 1 (the commencement of the financial year) to January 22 (42 3-7 weeks) the total receipts were £3,559,562, an increase of £49,687.

Municipal Transport Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended January 4 give total receipts of £420,444, or £34,079 more than in the corresponding week of last year. The aggregate receipts for 40 weeks amounted to £16,662,178, an increase of £710,438 over the corresponding period of last year.

CONTRACTS.

Gloucester Council has placed a repeat order with the Vulcan Motor and Engineering Co. for a 26-seat omnibus.

Manchester City Council has accepted the tender of Forest City Electric Co., Ltd., Manchester, for the supply of tramway rail bonds.

Leyland Motors, Ltd., have a contract to supply 17 double-deck and six single-deck omnibuses to Birkenhead Corporation Tramways.

Liverpool Corporation has accepted the tender of the English Electric Co. for the supply of twelve oil-cooled step-down transformers for sub-stations.

Cape Town Council has been recommended to accept the tender of the British Insulated Cables, Ltd., for the supply of copper and galvanised iron wire, at £4,609.

Digitized by Google

The British Thomson-Houston Co. has secured a twelve months' contract for supplying Mazda gas-filled electric lamps to the Great Northern Railway Co., Ireland.

Sydney Municipal Council has placed a contract with British Insulated Cables, Ltd., of Prescot, Lancashire, for the supply of underground cables at £31,407.

The Egyptian State Railway has placed with the Metropolitan-Vickers Electrical Co. a contract for the complete equipment of a 5,000 kw. generating station, to be constructed at Gabbary, to supply power for the railway workshops and also for public distribution in the district, including Alexandria. The turbo-alternator sets will be one of 2,500 kw. and two of 1,250 kw. capacity, generating at 6,600 volts, the turbines operating with steam at 240 lbs. per sq. in. gauge pressure superheated 250 deg. F. These sets are to be of the self-contained type, developed by the Metropolitan-Vickers Co., in which the turbine and condenser of each set are built as a combined unit and all auxiliaries are driven from the set itself. The sets are remarkably compact, and require no basement or elaborate foundations they make possible important savings in power-house construction. Running costs and attendance charges are also low, due to high operative efficiency and simplicity of control. More than 80 sets of this type have been supplied to power houses at home and abroad.

Rochdale Corporation is seeking more extensive powers for the running of omnibuses. Under its Act of 1925 the Council may run omnibuses within five miles from the Town Hall. In the new Bill, it is proposed to extend this to seven miles from the borough boundary.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

Name.	Week ended	Latest Return. 1928-29.	1929-30.	+ or —	Aggregate. Wks.	1929-30.	+ or —
		£	£	£		£	£
Aberdare U.D.C.	Jan. 21	483	579	+ 96	42½	25,333	+ 2,627
„ Motor Buses	„ 21	235	282	+ 47	42½	10,949	+ 1,715
„ Total	„ 21	718	861	+ 143	42½	36,282	+ 4,342
Aberdeen Corp.	„ 15	4,102	4,346	+ 244	33½	167,748	+ 14,168
Ashton-u-Lyne Corp.	„ 11	797	869	+ 72	41	37,661	+ 1,319
„ Motor Buses	„ 11	436	460	+ 24	41	19,957	+ 2,725
„ Trolley Buses	„ 11	268	280	+ 12	41	11,575	— 680
„ Total	„ 11	1,501	1,609	+ 108	41	69,193	+ 3,367
Ayr Corporation	„ 18	395	431	+ 36	35	21,996	+ 1,317
Barrow Corporation	Dec. 21	580	543	— 37	38	22,939	— 3,145
„ Motor Buses	„ 21	276	346	+ 70	38	14,859	+ 6,703
„ Total	„ 21	856	889	+ 33	38	37,828	+ 3,558
Belfast City	Jan. 17	10,053	10,814	+ 761	41½	467,134	+ 79,001
„ Motor Buses	„ 17	911	1,271	+ 360	41½	45,845	+ 32,792
„ Total	„ 17	10,964	12,085	+ 1,121	41½	512,979	+ 111,793
Birkenhead Corp.	„ 19	1,626	1,517	— 109	42	69,682	— 9,753
„ Motor Buses	„ 19	2,748	3,144	+ 396	42	150,346	+ 29,044
„ Total	„ 19	4,374	4,661	+ 287	42	220,028	+ 19,291
Birmingham Corp.	„ 14	26,568	27,062	+ 494	41	1,128,813	+ 16,260
„ Motor Buses	„ 14	10,901	14,104	+ 3,203	41	552,079	+ 97,094
„ Trolley Buses	„ 14	545	580	+ 35	41	23,287	+ 688
„ Total	„ 14	38,014	41,746	+ 3,732	41	1,704,179	+ 114,042
Blackburn Corp.	„ 15	1,883	1,803	— 80	41½	80,820	— 4,450
„ Motor Buses	„ 15	Nil	342	+ 342	10½	3,780	+ 3,780
„ Total	„ 15	1,883	2,145	+ 262	41½	84,600	— 670
Bradford Corporation	„ 18	13,516	14,892	+ 1,376	42	624,845	+ 33,113
Brighton Corporation	„ 19	1,963	2,242	+ 279	42	110,940	+ 2,553
Burnley Corporation	„ 18	2,921	3,144	+ 223	...	...	...
„ Motor Buses	„ 18	606	715	+ 109	...	...	...
„ Total	„ 18	3,527	3,859	+ 332	...	...	...
Burton-on-Trent Cpn.	„ 19	433	905	+ 472	42	21,289	+ 3,723
Bury Corporation	„ 19	2,050	1,863	— 187	42	85,985	— 8,503
„ Motor Buses	„ 19	304	839	+ 535	42	24,783	+ 8,986
„ Total	„ 19	2,354	2,702	+ 348	42	108,768	+ 483
Cardiff Corporation	„ 18	6,842	7,834	+ 992	41½	326,137	+ 6,606
Chatham and District	„ 16	947	1,058	+ 111	2	2,522	+ 87
Chesterfield Corp.	„ 20	1,909	2,065	+ 156	42	83,642	+ 3,231
Colchester Corp.	„ 22	427	530	+ 103	43	24,006	+ 4,396
Colne Corporation	„ 15	637	686	+ 49	42	30,145	+ 246
Coventry Corporation	„ 19	2,097	2,196	+ 99	42	90,366	+ 2,054
„ Motor Buses	„ 19	1,431	1,846	+ 415	42	69,596	+ 18,911
„ Total	„ 19	3,528	4,042	+ 514	42	159,962	+ 20,965
Darlington Corp.	„ 18	970	1,044	+ 74	41½	42,164	+ 1,152
Derby Corporation	„ 18	2,866	3,324	+ 458	42	137,713	+ 10,384
Dover Corporation	„ 18	304	356	+ 52	42	17,397	+ 446
Dundee Corporation	„ 14	3,232	3,361	+ 129	34½	121,225	+ 4,584
East Ham Corp.	„ 18	2,132	2,325	+ 193	41½	97,235	+ 4,614
Edinburgh Corp.	„ 11	12,921	14,073	+ 1,152	34½	502,957	+ 17,580
„ Motor Buses	„ 11	3,034	3,456	+ 422	34½	121,046	+ 13,553
„ Total	„ 11	15,955	17,529	+ 1,574	34½	624,003	+ 31,443
Exeter Corporation	„ 22	758	785	+ 27	43	36,991	+ 577
Glasgow Corporation	„ 11	40,276	44,524	+ 4,248	32	1,430,609	+ 6,406
„ Motor Buses	„ 11	4,641	7,120	+ 2,479	32	192,627	+ 105,384
„ Total	„ 11	44,917	51,644	+ 6,727	32	1,522,296	+ 111,850
Gloucester Corp.	„ 15	485	671	+ 186	41½	25,017	+ 1,785
Grimsby Corporation	„ 18	1,334	1,509	+ 175	42	61,592	— 5,416
Halifax Corporation	„ 14	4,015	5,037	+ 1,022	41½	195,049	+ 13,774
Huddersfield Corp.	„ 18	6,050	6,438	+ 388	42	270,030	+ 3,597
Hull Corporation	„ 18	6,283	6,061	— 222	42	255,402	+ 1,429
„ Motor Buses	„ 18	1,311	1,499	+ 188	42	59,681	+ 7,868
„ Total	„ 18	7,594	7,560	— 34	42	315,083	+ 9,297
Ilford Corporation	„ 18	1,415	1,490	+ 75	41½	63,262	+ 1,151
Ipswich Corp. Trol.Bus	„ 18	1,145	1,251	+ 116	42	54,521	+ 3,711
Isle of Thanet	„ 15	315	367	+ 52	2½	794	— 46
Kilmarnock Corp.	„ 18	415	473	+ 58	35½	17,116	+ 1,160
Lancashire Un.	Dec. 22	2,086	2,248	+ 162	50½	115,062	— 6,628
„ Motor Buses	„ 22	3,895	4,574	+ 749	50½	223,049	+ 35,800
Leeds Corporation	Jan. 18	18,515	19,606	+ 1,091	41½	824,550	+ 25,158
Leicester Corp.	„ 18	7,986	8,402	+ 416	42	356,173	+ 17,760
Lincoln Corp.	„ 19	910	912	+ 2	42	39,213	+ 1,769
Liverpool Corp.	„ 18	28,423	30,207	+ 1,784	41½	1,269,735	+ 20,980
London County Coun.	„ 22	79,825	82,753	+ 2,928	42½	3,559,562	+ 49,687
Luton Corporation	„ 15	328	378	+ 50	41½	17,009	+ 1,002
Maidstone Corp.	„ 16	193	145	— 48	41½	8,169	— 2,950
„ Motor Buses	„ 16	222	350	+ 128	41½	13,313	+ 3,937
„ Trolley Buses	„ 16	203	253	+ 50	41½	12,815	+ 1,642
„ Total	„ 16	678	788	+ 110	41½	34,297	+ 2,599
Manchester Corp.	„ 18	33,615	35,369	+ 1,664	42	1,478,523	+ 9,928
„ Motor Buses	„ 18	4,243	5,020	+ 677	42	208,899	+ 31,367
„ Total	„ 18	37,988	40,329	+ 2,341	42	1,682,422	+ 41,295

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS—*Continued.*

Name.	Week ended	Latest Return. 1928-29.	1929-30.	+ or —	Aggregate. Wks.	1929-30.	+ or —
		£	£	£		£	£
Middlesbrough Corp.	Jan. 14	1,080	1,090	+ 10	41½	47,234	— 403
„ Motor Buses	„ 14	455	574	— 119	41½	21,834	+ 3,253
„ Total	„ 14	1,535	1,664	+ 129	41½	69,068	+ 2,850
Newcastle-on-Ty. Corp	„ 18	8,844	9,029	+ 185	42	417,374	+ 19,377
„ Motor Buses	„ 18	1,752	1,958	+ 206	42	85,069	+ 7,050
„ Total	„ 18	10,596	10,987	+ 391	42	502,443	+ 26,427
Newport Corporation	„ 11	640	764	+ 124	41	31,642	+ 2,054
„ Motor Buses	„ 11	1,561	1,708	+ 147	41	69,583	+ 150
„ Total	„ 11	2,201	2,472	+ 271	41	101,225	+ 2,204
Northampton Corp.	„ 17	1,476	1,183	— 293	41½	47,008	— 14,405
„ Motor Buses	„ 17	256	676	+ 420	41½	28,208	+ 15,785
„ Total	„ 17	1,732	1,859	+ 127	41½	75,216	+ 980
Nottingham Corp.	„ 16	6,360	6,145	— 215	41½	273,102	— 10,679
„ Motor Buses	„ 16	2,098	2,822	+ 724	41½	103,374	+ 23,622
„ Trolley Buses	„ 16	568	594	+ 26	41½	24,005	+ 1,461
„ Total	„ 16	9,026	9,561	+ 535	41½	401,381	+ 14,440
Oldham Corporation	„ 18	3,472	3,715	+ 243	43	154,344	— 15,048
„ Motor Buses	„ 18	1,807	2,052	+ 245	43	86,567	+ 26,137
„ Total	„ 18	5,279	5,767	+ 488	43	240,911	+ 10,489
Plymouth Corp.	„ 18	3,361	3,508	+ 147	41½	159,150	— 3,112
„ Motor Buses	„ 18	1,734	2,128	+ 394	41½	84,932	+ 12,582
„ Total	„ 18	5,095	5,636	+ 541	41½	244,082	+ 9,470
Portsmouth Corp.	„ 18	4,722	5,791	+ 1,069	42	275,589	+ 14,066
Preston Corporation	„ 15	1,640	1,728	+ 88	41½	72,033	+ 1,623
„ Motor Buses	„ 15	429	522	+ 93	41½	20,818	+ 2,600
„ Total	„ 15	2,069	2,250	+ 181	41½	92,851	+ 3,623
Rawtenstall Corp.	„ 19	818	862	+ 44	42	35,821	— 1,962
„ Motor Buses	„ 19	444	546	+ 102	42	22,017	+ 3,013
„ Total	„ 19	1,262	1,408	— 146	42	57,838	+ 1,051
Reading Corporation	„ 16	1,461	1,471	+ 10	42	64,280	+ 228
„ Motor Buses	„ 16	813	889	+ 76	42	38,803	+ 2,343
„ Total	„ 16	2,274	2,360	+ 86	42	103,173	+ 2,571
Rochdale Corp.	„ 18	2,836	2,827	— 9	...	121,355	— 12,067
„ Motor Buses	„ 18	1,246	1,645	+ 399	...	66,766	+ 10,116
„ Total	„ 18	4,082	4,472	+ 390	...	188,121	— 1,951
Rotherham Corp.	„ 20	2,343	2,770	+ 427	43	118,353	+ 9,695
Salford Corporation	„ 19	10,387	11,648	+ 1,261	42	473,331	+ 29,945
Sheffield Corp.	„ 18	19,791	21,233	+ 1,442	42	882,534	+ 28,095
Southampton Corp.	„ 15	3,071	3,383	— 312	42	143,705	+ 7,492
„ Motor Buses	„ 15	622	876	+ 254	42	34,139	+ 9,122
„ Total	„ 15	3,693	4,259	+ 566	42	177,844	+ 16,614
Southend-on-Sea Corp.	„ 22	1,752	1,942	+ 190	41½	104,339	+ 278
Southport Corp.	„ 18	1,346	1,463	+ 117	41½	71,868	— 29
St. Helens Corp.	„ 14	1,837	2,107	+ 270	41½	85,166	+ 5,682
Sunderland Corp.	„ 19	2,179	2,354	+ 175	42	102,904	+ 3,823
Swindon Corp.	„ 15	554	889	+ 335	41½	34,183	+ 9,644
Wallasey Corp.	„ 18	1,805	1,129	— 676	41½	55,241	— 35,420
„ Motor Buses	„ 18	673	1,802	+ 1,129	41½	88,137	+ 52,380
„ Total	„ 18	2,478	3,931	+ 453	41½	143,378	+ 16,960
Walsall Corporation	„ 12	3,234	3,534	+ 300	41	142,101	+ 12,194
Walthamstow Corp.	„ 18	2,129	2,352	+ 223	42	102,762	+ 7,199
Warrington Corp.	„ 16	872	929	+ 57	42	37,608	— 1,057
„ Motor Buses	„ 16	424	495	+ 71	42	19,332	+ 3,213
„ Total	„ 16	1,296	1,424	+ 128	42	56,940	+ 2,156
West Ham. Corp.	„ 18	5,371	6,317	+ 946	41½	254,553	+ 22,027
Wolverhampton Corp.	„ 12	Nil	Nil	Nil	41	Nil	— 15,958
„ Motor Buses	„ 12	2,598	2,627	+ 29	41	115,133	+ 16,807
„ Trolley Buses	„ 12	3,105	3,292	+ 187	41	138,467	+ 23,118
„ Total	„ 12	5,703	6,919	+ 216	41	253,600	+ 24,267
York Corporation	„ 15	943	1,040	+ 97	42	44,218	+ 194
„ Motor Buses	„ 15	324	541	+ 217	42	17,601	+ 4,088
„ Total	„ 15	1,267	1,581	+ 314	42	61,819	+ 4,282

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

Name.	Week or M'th.	Latest Return. 1928-29.	1929-30.	Aggregate. Wks. or *Ms.*	1929-30.	In. or Dec.
Anglo-Argentine	Jan. 21	£85,670	£84,570	3 w	£251,405	— £8,598
Brazilian Traction $	Dec.	3,673,543	3,084,311	12 m	49,351,215	+ 6,576,492
British Columbia $	Nov.	1,192,080	1,270,922	5 m	5,995,951	+ 373,718
Buenos Aires Lacroze	Jan. 19	13,495	12,922	20 w	332,628	— 30,328
Burma E. Sup. Co. Rs.	Nov.	66,905	62,191	4 m	249,852	— 25,126
Calcutta ... Rs.	Jan. 18	139,285	129,155	24 w	382,309	— 57,385
Cape Town	Dec.	32,700	30,332	...	...	...
Carthagena & Herrerias	Dec.	676	1,314	12 m	13,367	+ 277
Durban	Nov.	22,498	25,214	4 m	95,524	+ 2,777
East India	Dec.	3,670	3,721	5 m	19,082	+ 734
Kalgoorlie	Oct.	1,738	1,703	10 m	17,174	— 291
La Plata	Dec.	10,300	10,327	12 m	116,149	+ 2,604
Madras (2 weeks) Rs.	Jan. 15	48,790	49,351	2 w	49,351	+ 561
Para	Dec.	14,360	14,487	1 m	14,487	+ 127
Port Elizabeth ...	Dec.	9,830	9,115	...	...	...
Rangoon ... Rs.	Dec.	130,110	138,400	12 m	1,486,686	+ 8,290
Shanghai ... $	Dec.	321,970	345,415	12 m	4,073,322	+ 370,577
Singapore ... ...$	Dec.	111,000	129,000	3 m	388,000	+ 57,000
Winnipeg ... ...$	Nov.	553,186	597,391	11 m	5,993,875	+ 393,276

RAILWAY RECEIPTS.

3rd Week ended Jan. 19th.	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week.	Inc. or Dec. to Date.
G.W.R.	293,000 —	2,000	353,000 +	2,000	556,000 +	4,000 +	20,000
L.M.S.R.	461,000 —	3,000	859,000 —	6,000	1,290,000 —	9,000 —	27,000
L.N.E.R.	292,000 —	4,000	710,000 —	5,000	1,002,000 —	1,000 +	6,000
S.R.	273,000 +	7,000	106,000 —	5,000	379,000 +	2,000 +	20,000
Totals	1,199,000 +	2,000	2,028,000 —	4,000	3,227,000 —	2,000 +	19,000

ELECTRIC RAILWAYS.

Name.	Week Ended.	Latest Return. 1929.	1930.	+ or —	Aggregate. 1930.	+ or —
London Underground						
Common Fund Cos.	Jan. 18	271,100	300,100	+ 29,000	702,800	+ 77,500
Lond. & Sub. Group	„ 18	37,900	43,900	+ 6,000	110,000	+ 16,800
Metropolitan Railway	„ 18	37,100	36,600	+ 1,500	111,000	+ 4,100
Liverpool Overhead	„ 19	1,679	1,625	— 54	4,892	— 162
Mersey Railway	„ 18	4,781	4,959	+ 178	15,480	+ 524

Digitized by Google

THE
Tramway and Railway World

FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.
Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates—

FOR THE UNITED KINGDOM—Twenty-five shillings per annum.

FOR ALL PLACES ABROAD—Twenty-five shillings per annum. Postage to Canada, 6s.; to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS.

LONDON, FEBRUARY 1, 1930.

IMPROVEMENTS IN ROLLING STOCK.

Encouraging progress has been achieved in the construction of improved tramcars in this country since Mr. C. J. Spencer, at the Bournemouth Congress of the Tramways and Light Railways Association, read a paper entitled "Modern Improvements in Rolling Stock." The year of that Congress was 1922, and Mr. Spencer confessed that the title of his paper was a misnomer, as with the exception of some minor details tramway cars were almost exactly of the same description as those built twenty or twenty-five years ago. In the year 1930 it may be said that notable progress has been, and is being, achieved under some of the headings under which Mr. Spencer grouped his remarks, although there is still great scope of further improvement. Dealing with elimination of noise, Mr. Spencer asked what attention had been given to reducing unsprung weight, which in a four-wheel car carrying fifty passengers would total at least 4,700 lbs. That weight was hammering on a rigid base at a speed in some cases of 20 m.p.h., damaging joints, points and crossings with concomitant terrific clanging. Could not a great proportion of this unsprung weight, he asked, be converted into sprung weight. Another question was, how far it was possible to introduce some non-conductor of sound and vibration between the tyre and the wheel centre and between the wheel centre and the axle. More powerful, yet lighter, motors, with better deceleration and acceleration, were touched upon, while the collector gear of the boom and wheel type was dismissed as "the most absurd piece of mechanism," a reference that should encourage Glasgow and Birmingham with their bow experiments. Car body design was described as being largely governed by the system of fare collection. A year before he prepared his paper Mr. Spencer had visited America, and while admitting that there was ground for stating that P.A.Y.E. car experiments had failed in Great Britain owing to the zone fare as contrasted with a flat fare in the U.S.A., he maintained it could not be said that everything possible had been done to make the system practicable here. So far the general manager of the company tramways of London is the only one who is experimenting with a double-deck car built for use on the payment-on-entry system. That car was described and illustrated in our issue of November 21 last, and is of much interest, as it contains several novel features. Other suggestions in Mr. Spencer's paper have been to some extent worked out in the experimental cars which his companies have introduced during the past three years. Managers and engineers of a number of other undertakings also have made notable progress in some of those directions; and the paper presented at last year's Congress by Mr. G. H. Fletcher showed that the manufacturers of trucks, motors and equipment are keen to collaborate with the operators. The majority of tramway authorities now realise the vital importance of comfortable seats, improved lighting and speed. At Birmingham a special study has been made of weight reduction in order to meet the increased cost entailed by higher speed; and the results of this study, as embodied in a fine new car, were given in our issue of January 16. All these experiments should stimulate tramway owners and operators to further efforts. The tramway, it need scarcely be said, is on trial; and, however satisfactory it may be as respect economy and convenience, it will not long survive unless more energy is infused into its development than has been characteristic of the past quarter of a century. A new condition has been created. No longer has the tramway a monopoly of urban transport. It can survive only by active competition and energetic development.

ROAD TRAFFIC BILL IN THE LORDS.

GOVERNMENT DEFEAT ON STATUTORY MONOPOLIES.

On Monday last the House of Lords resumed consideration of the Road Traffic Bill as amended in Committee. On the motion of Earl Russell, who was in charge of the Bill, Clause 57 was amended to require that persons whom the Minister of Transport proposed to appoint as Traffic Commissioners should declare whether they had any financial interest in any transport undertaking which carried passengers within the area concerned.

At the request of Earl Russell, Clause 63, which related to road service licences, was deleted, and a new clause was inserted in its place, which was the same as the old one, except that it contained a proviso to prevent any conflict of jurisdiction between the commissioners and authorities who already had power to fix minimum fares.

Sub-section (6) of the new clause stated that a road service licence in respect of any route shall be required notwithstanding that the provision of a service of stage carriages or express carriages was authorised by special Act or Order of Parliament, but that a licence shall not be refused if the route is specifically so authorised.

An amendment to omit the words after "Parliament" was moved by the Earl of Cranbrook and supported by the Earl of Donoughmore, and the Marquis of Londonderry, on the ground that the clause would over-ride powers which companies and local authorities had obtained from Parliament. Earl Russell replied that the clause provided that the Commissioners should pay regard to the powers obtained by private Acts, and the amendment was withdrawn.

The Earl of Cranbrook then moved the deletion of the proviso to sub-section 6, which reads as follows: "Provided that notwithstanding any restrictions to the contrary, whether contained in this or any other Act, or otherwise having the force of law, it shall be lawful for the Commissioners to grant, under and in accordance with the provisions of this section, a road service licence in respect of any route or any part of a route to any person applying for such a licence."

Lord Askwith said the amendment would be satisfactory to the Tramways and Light Railways Association. The proposed clause, as it stood, would over-ride powers granted in Acts of Parliament.

The Earl of Donoughmore instanced Oxford as a case in which the clause would render of no value monopoly powers obtained in consideration of the payment of an annual rent now amounting to £1,500 a year.

The Marquis of Londonderry said there was great apprehension among various companies in relation to the authority which the Commissioners would exercise over practical monopolies that had been obtained from Parliament.

Earl Russell stated that all the proviso said was that where a local authority or a company had got a right from Parliament to run omnibuses upon a particular route, the Commissioners should

Digitized by Google

recognise that route to the extent of not refusing a licence. Oxford would lose its £1,500 a year because Oxford would no longer have the consideration to give. There had been thirteen monopolies granted in the past two years, and if these cases were taken out of the jurisdiction of the Commissioners, they would be left without that general power of regulation which was so necessary. The Commissioners would, in these cases, have regard to the moral rights of the parties.

Lord Danesfort regarded the proviso as involving a novel and most dangerous principle.

The amendment was adopted by 36 votes to 11, and the clause as amended was agreed to.

Earl Russell submitted a new schedule dealing with speeds. The chief alteration was a proposal to limit heavy goods vehicles to 30 m.p.h. if fitted with pneumatic tyres, and 16 m.p.h. if not so fitted, but having soft or elastic tyres. The schedule was agreed to, and the Report stage was concluded.

INCREASED SPEEDS FOR MANCHESTER.

In a report to the Manchester Transport Committee Mr. R. Stuart Pilcher, the general manager, says that he thinks it is generally agreed that if all vehicles carrying the mass of the population can be run at a faster average rate per mile there will be less congestion in the city, more passengers will be carried in a given time, and there will be room for more vehicles. Increased speed of tramcars is not only in the interests of the passenger and the public in general, but it is an aid to the reduction of operating expenses. If the schedule speed of cars can be increased the cost of operation will be reduced; the higher the average speed the lower the working expenses. Speeding up of cars has been accomplished by the introduction of high-speed motors grouped on certain routes, which are capable of running at the rate of 29 miles per hour on the level. Changes already made have increased the average schedule rate from 7¾ to 9 miles per hour and application has been made to the Ministry of Transport to increase some of the present speeds.

FINANCIAL.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended January 29 amounted to £82,929, an increase of £4,410 compared with the corresponding week of last year. The route length was 166.29 miles, as compared with 165.78 a year ago. From April 1 (the commencement of the financial year) to January 29 (43 3-7 weeks) the total receipts were £3,642,691, an increase of £54,057.

Municipal Transport Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended January 11 give total receipts of £414,843, or £33,064 more than in the corresponding week of last year. The aggregate receipts for 41 weeks amounted to £17,073,533, an increase of £743,611 over the corresponding period of last year.

Dublin United Tramways Company will pay no ordinary dividend for the year 1929. In 1927 the dividend was 4½ per cent., and in 1928 4 per cent. The directors have set aside for renewal of track £20,000, and carry forward £12,037. In 1928 £50,000 was set aside for track renewals, £15,000 for mortgage and debenture redemption, £7,000 for overhead lines and cables, and £13,785 carried forward. The undertaking was seriously affected by a strike of the employees from August 12 to September 20 last year.

Metropolitan Railway Dividend.—An encouraging start with the series of home railway dividends was made on Thursday, when the Metropolitan Railway dividends for the second half of 1929 were announced. The company is paying 2¾ per cent., making, with the interim dividend of 1¼ per cent., a distribution of 4 per cent. on the year, which compares with 3½ per cent. for 1928. As in the previous year, £10,000 is placed in reserve, and the balance carried forward is £32,016, or £8,128 more than last year.

Manchester Transport.—Manchester Corporation Transport Committee has announced that for the first time for six years the committee expects next year to be able to transfer to the renewals fund out of profits more than it would be necessary to draw from the fund. The renewals fund, which in 1925 amounted to £620,000, now stands at £224,000. It is anticipated, however, that next year, after allowing £12,200 for depreciation of motor omnibuses, there will be available for transfer to renewals a balance of £122,300. The profit accruing from the tramcars amounts to £91,500 and from the motor omnibuses to £30,800. The estimated car mileage for the year is 23,500,000, a decrease compared with the current year's estimate of 2,480,000, which has resulted from the introduction of an omnibus service on the circular route. Traffic revenue is calculated on the basis of 17.93d. per car mile. Included in the estimates on capital account is a provisional estimate of £100,000 for developments in the omnibus undertaking during the year.

BUSINESS NOTES.

Guy Motors, Ltd., of Fallings Park, Wolverhampton, have opened a new depot at 59, Moor-street, Johannesburg, where they are in a position to give complete service of Guy and Star vehicles.

W. B. Dick & Co., Ltd., refiners of lubricating oils and greases, have made another step forward in the development of their organisation. An Aeroplane Department has been formed, and Messrs. W. B. Dick & Co. have appointed Mr. E. Chadwick Brown, of their selling staff, as manager of this department. A De Haviland Moth machine has been purchased by the chairman of the company, and their activities will be carried a step further.

MISCELLANEOUS NEWS AND NOTES.

Proposed Sao Paulo Railway Electrification.—Reuter reports that modified plans have been prepared for the electrification of the Sao Paulo Railway for a distance of 95 km.

Electric Heaters for Leeds Cars.—It is proposed that the Leeds Corporation tramcars shall be warmed by electric heaters. A similar experiment in Glasgow has proved successful.

Another Thames Tunnel Wanted.—Owing to the volume of traffic now using Blackwall Tunnel, Greenwich Borough Council suggests the construction of an additional tunnel under the Thames.

Leeds Parliamentary Bill Defeat.—By 32,794 votes to 11,248, the ratepayers of Leeds have rejected the clause in the Corporation Bill which asked for powers to extend the omnibus services by running outside the city.

Hull Poll on Level Crossings.—The ratepayers of Hull were polled on Tuesday on the proposal of the Corporation to join with the L. & N.E.R. Co. in abolishing level crossings in the city. By 32,319 votes to 2,854 the proposal was defeated.

Transfer Tickets at Cardiff.—On February 3 a reduction in fares and a new system of transfer tickets will come into force at Cardiff. The transfer tickets will be an advantage to passengers who change cars in the centre of the city in their journey to the Docks.

Increasing Profits of the L.C.C. Tramways.—At the meeting of the London County Council on Tuesday, Mr. C. W. Matthews, the chairman of the Highways Committee, stated that the estimated net surplus for the year ending March 31, 1930, of £40,891, on the tramways would be exceeded.

Transport Amalgamations.—It is rumoured that the Scottish General Omnibus Co., which is linked with the Scottish Motor Traction Co., is entering into arrangements in which the London, Midland & Scottish and the London and North-Eastern Railway Companies will be actively interested.

Electrical Workers' Wages.—Slight rises in the wages of workers in the electrical contracting industry will be made on the second pay-day in February. On the highest grade the rate is 1s. 10½d. per hour, and there will be an increase of ¾d. In the other three grades there will be an increase of ½d.

Liverpool Street Station Plans.—Negotiations for the electrification of the London and North-Eastern Railway suburban lines out of Liverpool Street Station are continuing. The General Manager of the railway recently had a meeting with the Minister of Transport when the matter was further discussed.

Sunday Services at Colwyn Bay.—Colwyn Bay has at length decided to give Sunday transport a trial. A vote of the ratepayers was taken on January 20 and reversed a decision made 18 months ago. The poll resulted in a majority of 1,678 in favour of a Sunday service both of tramcars and omnibuses.

Gift to Southport Tramway Men.—At a meeting of Southport Tramways Committee it was stated that a gift of £5 had been made by a gentleman for the benefit of drivers and conductors of the tramways, in appreciation of the kindness and attention he had received from them. The thanks of the Committee were conveyed to the donor.

Omnibus Owner Sent to Prison.—In the Chancery Court on Thursday Mr. Justice Bennett made an order committing to prison Mr. T. F. Dale, omnibus proprietor, of Newcastle, for breach of an injunction obtained by the Corporation of that city restraining him from plying with his omnibuses within the city without being licensed to do so.

Newcastle Transport Committee on January 28 received a deputation from the Transport and General Workers' Union, who applied for an increase in the wages of the tramway employees. Ald. Richard Mayne, the chairman of the Committee, informed the deputation that the request could not be granted during the present financial year whatever the future might produce.

British Omnibuses for Overseas.—A telegram in the "Daily Mail" from Johannesburg states that the City Council is buying three British motor omnibus chassis at £812 each. The British tender was nearly £200 higher than the lowest tender from the United States, but the councillors consider that English omnibuses have proved their worth. Cape Town Council has also ordered five omnibuses from a British firm.

Sunderland Speeding-up Programme Delayed.—As the result of a discussion between representatives of the employees and Sunderland Tramways Committee, it has been agreed that the scheme for speeding-up the services shall be withdrawn until July 1. By that time the relaying of certain tracks and the introduction of high-speed motors (part of the proposals of the tramways manager) will enable the matter to be viewed in a different light.

Non-union Employees of Salford.—The Salford branch of the Transport and General Workers' Union on January 28 sent a communication giving notice to a number of non-union employees of the Corporation Tramways Department that they must join the Union. The local secretary states that the Union members considered that in fairness to themselves all employees would have to join, or they would take stronger and more drastic measures.

New Type of "London General" Omnibus.—The London General Omnibus Company will shortly put into service a new omnibus intended primarily for rush work. An official of the company recently stated that the main feature of the vehicle is a totally enclosed and much enlarged rear platform. Six people will be able to step off the omnibus at once, and this will greatly reduce the time taken by passengers in leaving. A dozen persons can stand on the platform. Omnibuses of this type should greatly reduce the congestion of traffic during rush hours.

Digitized by Google

Doncaster Trolley Omnibus System.—The new Carr House Road Extension and the Hyde Park Section, which have recently been converted to the trolley omnibus system, were put into operation on the 19th ult. Five sections of the system have now been completed. The contractors, Messrs. Clough, Smith & Co., Ltd., are at present engaged upon the completion of the Race Course and Thorne Road Sections, which it is hoped to put into service at an early date.

Guy Six-Wheeler at Wolverhampton.—In our issue of January 16 an illustration was given of a Guy six-wheel omnibus. It was stated that the vehicle was one of a number that Guy Motors, Ltd., of Wolverhampton, are supplying to Northampton Corporation. The order has, however, not yet been placed. The photograph showed the new type of Guy six-wheel omnibus which was exhibited at the Commercial Motor Exhibition with the permission of Northampton Corporation.

Manchester's New Omnibuses.—Manchester Transport Committee recently inspected one of the 60 double-deck omnibuses which are to replace single-deck tramcars on the circular route. Twelve of these new vehicles, the chassis of which have been built by Crossley Motors, Ltd., and Leyland Motors, Ltd., will be delivered within a few days. The omnibuses cost £1,750 each and seat 50 passengers—24 in the lower and 26 in the upper saloon. On the upper deck, which is specially designed to clear low bridges, upholstered seats are placed in pairs along a raised dais which runs down the centre of the saloon, leaving a corridor on either side.

L.N.E.R. Proposed Tube to Ilford.—The London and North-Eastern Railway announced on January 29 that they are considering the construction of a tube for passenger traffic between Liverpool Street and Ilford. They are in communication with a firm of engineers with a view to the preparation of a plan, together with an estimate of the cost, which is estimated at £1,000,000 per mile. The company are giving further consideration to the electrification of the Liverpool Street lines. It is stated that it is likely that the decision of the directors on both schemes will depend to some extent on the amount of assistance that the Government are prepared to give.

Reduced Omnibus Fares at Glasgow.—The question of the issue of omnibus season tickets has received consideration by the General Purposes Sub-Committee of Glasgow Transport Committee. This Committee has adopted, by the casting vote of the chairman, Mr. P. J. Dollan, a report by Mr. L. Mackinnon, the general manager, recommending that all omnibus fares over 2d. be reduced, and that the maximum omnibus fare within the city boundary be 3½d. The general manager expressed the opinion that any concession should be given to all passengers alike, and not only to those who could afford to purchase season tickets. The new scale of fares will come into operation in March.

Success of High-speed Cars at Glasgow.—In a report by Mr. L. Mackinnon, general manager of the Glasgow Tramways, it is stated that the high-speed reconditioned cars are meeting everywhere with approval. Easier to drive and more comfortable to travel in, they are attracting passengers, and on all routes there is a call for more. It is not uncommon to find passengers who formerly waited for omnibuses now permitting the omnibuses to pass while they wait for the cars. It is proposed to recondition 300 more cars at an estimated cost of £2,700. Including cars in the shops and in service, there are 308 reconditioned cars. The total stock is 1,136, but over 100 are in doubtful condition.

The Private Car and London Congestion.—In commenting on the ways of relieving congestion in London, "The Times" recently remarked that heavy congestion in London has now reached the point at which it may begin to solve its own problem by discouraging private car owners from driving into the busy area. In this connection, the Underground Group believe that their idea of providing garage facilities at certain outstations is likely to develop. Already much use has been made of the garage at Morden Station by persons who finish the difficult part of the journey by train. A new car park is about to be opened outside that station to accommodate 100 cars and 100 motor cycles at a flat rate of 6d. each.

London Subway Enlargement.—The last single-deck cars will run through the subway from the Victoria Embankment to Southampton-row at 12.36 midnight on Sunday, February 2. After that time the subway will be closed for at least twelve months and probably longer, for reconstruction to take double-deck cars. The extra depth will be obtained by excavating the ground level at the southern end of the tunnel and by raising the roof at the northern end. Work on the portion of the tunnel in Southampton-row has been in progress for several months. The London General Omnibus Company will run an omnibus service over the route of the subway and, via the Strand, to Charing Cross. The subway was opened in February, 1906.

Traffic Noise Prosecutions.—In the House of Commons the Minister of Transport stated that the following prosecutions were instituted from August 1 to December 31, 1929:—Under the Motor Cars (Excessive Noise) Regulations, 1929, 1,282; for ineffective silencers, under the Motor Cars (Use and Construction) Orders, 6,116; for failing to stop action of machinery, under the Motor Cars (Use and Construction) Orders, 8—total, 7,406. It was not his intention to introduce legislation dealing with noises on railways, tubes, and other traffic.—The general manager of Halifax Corporation Tramways was summoned at Huddersfield on January 21 in respect of a motor omnibus which it was alleged created excessive noise while in use. It was stated that the vehicle was one of a number which had recently been taken over from a company, and that there had not been time to get them into proper condition. A fine of 10s. was imposed.

The Future of Newcastle Tramways.—Newcastle Transport Committee has issued a long report dealing with their policy in relating to the tramways undertaking. While the Committee have no thought of recommending the abolition of the tramways, they do not propose to recommend any extension of the existing track. With the consent of the City Council they propose to adopt other forms of transport when and where desirable, to meet the growing needs of the inhabitants. The Committee are convinced that on most routes the tramcar is the best and most economical form of transport.

Tramway to L.C.C. St. Helier Estate.—The L.C.C. propose to extend the tramway service from Mitcham, Surrey, Cricket Green Terminus to the St. Helier Estate, Morden, where the London County Council is erecting some 10,000 houses. The section from Tooting Junction to Mitcham Green is owned by the South Metropolitan Electric Tramways, who are willing to extend the line if certain parts of the road to Sutton are widened, and a bridge over the River Wandle is reconstructed. Mitcham Urban Council favours the extension, and will support it if the L.C.C. promote legislation to enable the road widening to be carried out.

Dundee and Broughty Service.—Dundee Town Council and the Broughty Ferry and District Tramway Company are still negotiating regarding the joint omnibus service between Dundee, Broughty Ferry and Monifieth. The council and the company have agreed to run a joint service of three omnibuses, and recently the company asked the council to lend them three omnibuses. The council has acceded to the request on the understanding that a charge is made of 1s. 6d. per omnibus mile run, but suggests that the council should run the three omnibuses until the company purchases omnibuses. The Transport Committee proposes that the fares should be 6d. single to Monifieth and 4d. single to Broughty Ferry.

PERSONAL.

Mr. J. W. Eunson has resigned the position of rolling stock superintendent of Plymouth City Transport Department.

Sir Hugo Hirst, Bart., who has been unwell for some time, is recovering and expects soon to resume his normal activities.

Mr. W. F. Prentice, sales manager of Dorman, Long & Co., Ltd., has been elected a director of the Darlington Rolling Mills Company.

Alderman A. J. Dobbs will, it is reported, be the new chairman of Leeds Tramways Committee. Alderman Dobbs, who is not at present a member of the Committee, is regarded as one of the ablest of the Socialists in the City Council.

Mr. Thomas Medcalf, formerly secretary of the Swindon Corporation Electricity Undertaking and tramways manager, and recently appointed transport manager, has resigned. Mr. Medcalf has spent 25 years in the service of Swindon, and under his management the electricity undertaking made great progress.

Mr. K. Laing, who is the son of Mr. H. W. Laing (until recently manager of the Lytham St. Annes Corporation Tramways), is the assistant manager of the Mansfield and District Electric Tramways, Ltd. It was incorrectly stated in our last issue that Mr. H. W. Laing had been appointed manager at Mansfield.

Mr. Arthur Eaton has been appointed operating superintendent of the East Surrey Traction Co. He was formerly superintendent of Autocar Services at Tunbridge Wells, a company now amalgamated with the East Surrey Company. Mr. W. A. C. Snook has been appointed local manager at Tunbridge Wells.

Mr. Robert Birkett, formerly for many years electrical engineer and general manager of Southend-on-Sea Corporation Lighting and Tramways, was recently presented by the Mayor of Southend with a framed testimonial as a mark of appreciation of his services "for a period of 24 years, during which period has been witnessed a great growth in the electrical industry."

Mr. A. Dickson has been appointed rolling stock superintendent of Oldham Transport Department. Mr. Dickson has for some time been superintendent of the omnibus garage. There were 35 applicants for the position, and five were interviewed. The other four were Mr. W. Baxendale (Halifax), Mr. L. Bregazzi (Colchester), Mr. J. G. Cockburn (Sheffield), and Mr. G. T. Dickinson (Cambridge).

Burnley Tramways Management.—The Tramways Committee on January 22 further reduced the short list of candidates for the position of tramway and omnibus manager to three, namely, Mr. Frank H. Crossley, tramways and transport deputy manager, Ashton-under-Lyne; Mr. H. B. Sharpe, deputy manager and rolling stock engineer, Rotherham Tramways and Omnibuses; and Mr. C. H. Stafford, deputy manager and general assistant engineer, Reading Tramways. A deputation, consisting of the chairman of the Committee, Ald. Luke Thornber, the vice-chairman, Coun. J. W. Gradwell, and Ald. Buchanan, has been appointed to visit the undertakings where the selected candidates are engaged.

Mr. J. R. Groves.—We regret to record the death of Mr. J. R. Groves, which took place at his home in Barrow on January 27. Mr. Groves, until about twelve months ago, when he retired, owing to ill-health, was manager of Barrow Corporation Tramways and Omnibuses. He had previously been connected with tramways in various parts of the country for over forty years. In 1918 he was appointed manager for the B.E.T. Company at Barrow, and when the Corporation purchased the undertaking in 1921, he was retained as manager. During the whole of his term of office he was confronted with special difficulties owing to local conditions which were aggravated by trade depression. Some years before his retirement he had a seizure, and he subsequently suffered from ill-health, which he bore with great patience and fortitude.

Digitized by Google

CONTRACTS.

Surrey County Council Highways Committee has accepted the tender of Leyland Motors, Ltd., at £1,795 for supplying a 10-ton petrol lorry.

Crossley Motors, Ltd., have received an order from the Canadian Government for sixteen six-wheel chassis with 20-60 h.p. four-cylinder engines.

Merthyr Omnibus Committee has recommended the acceptance of the tender of the Bristol Tramways & Carriage Co., Ltd., amounting to £1,288, for four omnibuses.

Croydon Corporation Hospitals Committee has recommended the acceptance of the tender of Morris Commercial Motors, Ltd., for the supply of a motor omnibus at £460.

Birmingham Corporation Tramways Committee has accepted the tender of the Brush Electrical Engineering Co., Ltd., for the supply of fifteen motor omnibus bodies, and of Guy Motors, Ltd., for ten single-deck motor omnibuses.

The London County Council has made a contract to the value of £3,600 with the United Services Transport Co., Ltd., for the supply on hire of petrol lorries for the tramway department for one year. Thirty-seven firms were invited to submit tenders.

The Bristol Tramways and Carriage Co., Ltd., have recently received, among other orders, the following :—One Bristol "Superbus" on four-cylinder chassis for Garlick, Burrell & Edwards, Liverpool, and a Bristol 30-seat coach on four-cylinder chassis and a 30-seat coach on six-cylinder chassis for A. & R. Graham, Kirkintilloch. All of these vehicles are of the four-wheel type.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

Name.	Week ended	Latest Return. 1928-29.	1929-30.	+ or —	Aggregate. Wks.	1929-30.	+ or —
		£	£	£		£	£
Aberdare U.D.C.	Jan. 21	483	579	+ 96	42¾	25,333	+ 2,627
„ Motor Buses	„ 21	235	282	+ 47	42¾	10,949	+ 1,715
„ Total	„ 21	718	861	+ 143	42¾	36,282	+ 4,342
Aberdeen Corp.	„ 22	4,074	4,289	+ 215	34¾	172,037	+ 14,383
Ashton-u-Lyne Corp.	„ 18	804	890	+ 86	42	38,552	+ 1,406
„ Motor Buses	„ 18	426	466	+ 40	42	20,424	+ 2,768
„ Trolley Buses	„ 18	280	281	+ 1	42	11,856	— 679
„ Total	„ 18	1,510	1,637	+ 127	42	70,832	+ 3,495
Ayr Corporation	„ 18	395	431	+ 36	35	21,906	+ 1,317
Barrow Corporation	Dec. 21	580	543	— 37	38	22,939	— 3,145
„ Motor Buses	„ 21	276	346	+ 70	38	14,889	+ 6,703
„ Total	„ 21	856	889	+ 33	38	37,828	+ 3,558
Belfast City	Jan. 24	9,437	10,871	+ 1,434	42½	478,005	+ 80,435
„ Motor Buses	„ 24	895	1,293	+ 398	42½	47,138	+ 33,190
„ Total	„ 24	10,332	12,164	+ 1,832	42½	525,143	+ 113,625
Birkenhead Corp.	„ 26	1,502	1,480	— 22	43	71,162	— 9,775
„ Motor Buses	„ 26	2,488	3,049	+ 561	43	153,396	+ 29,606
„ Total	„ 26	3,990	4,529	+ 539	43	224,558	+ 19,831
Birmingham Corp.	„ 21	27,163	27,747	+ 584	42	1,156,560	+ 16,844
„ Motor Buses	„ 21	11,561	14,707	+ 3,146	42	566,786	+ 100,239
„ Trolley Buses	„ 21	559	587	+ 28	42	23,874	+ 715
„ Total	„ 21	39,283	43,041	+ 3,758	42	1,747,220	+ 117,798
Blackburn Corp.	„ 22	1,860	1,776	— 84	42½	82,506	— 4,542
„ Motor Buses	„ 22	Nil	325	+ 325	11½	4,105	+ 4,105
„ Total	„ 22	1,860	2,101	+ 241	42½	86,701	— 437
Bradford Corporation	„ 25	13,298	14,758	+ 1,460	43	639,603	+ 34,573
Brighton Corporation	„ 26	1,960	2,147	+ 187	43	113,088	+ 2,740
Burnley Corporation	„ 25	2,949	2,919	— 30	—	...	...
„ Motor Buses	„ 25	596	664	+ 68	...	...	...
„ Total	„ 25	3,545	3,583	+ 38	...	...	...
Burton-on-Trent Cpn.	„ 26	404	854	+ 450	43	22,123	+ 4,172
Bury Corporation	„ 26	1,944	1,897	— 47	43	85,882	— 8,551
„ Motor Buses	„ 26	287	837	+ 550	43	25,620	+ 9,537
„ Total	„ 26	2,231	2,734	+ 503	43	111,502	+ 986
Cardiff Corporation	„ 25	6,751	7,542	+ 791	42½	332,455	+ 5,621
Chatham and District	„ 23	1,014	1,077	+ 63	3	3,599	+ 150
Chesterfield Corp.	„ 27	1,888	2,015	+ 127	43	85,657	+ 3,358
Colchester Corp.	„ 20	416	557	+ 141	44	24,562	+ 4,538
Colne Corporation	„ 22	612	653	+ 41	43	30,708	+ 287
Coventry Corporation	„ 26	2,079	2,203	+ 124	43	92,560	+ 2,178
„ Motor Buses	„ 26	1,432	1,873	+ 441	43	71,408	+ 19,351
„ Total	„ 26	3,511	4,076	+ 565	43	164,037	+ 21,529
Darlington Corp.	„ 25	959	1,023	+ 64	42½	43,188	+ 1,216
Derby Corporation	„ 25	2,246	2,440	+ 194	43	108,100	— 3,072
„ Motor Buses	„ 25	548	852	+ 304	43	32,906	+ 13,954
„ Total	„ 25	2,794	3,292	+ 498	43	141,006	+ 10,882
Dover Corporation	„ 25	306	350	+ 44	43	17,748	+ 490
Dundee Corporation	„ 21	3,152	3,330	+ 178	35½	124,555	+ 4,761
East Ham Corp.	„ 25	2,148	2,385	+ 237	42½	99,620	+ 4,899
Edinburgh Corp.	„ 18	12,765	13,630	+ 865	35¾	516,587	+ 18,755
„ Motor Buses	„ 18	2,984	3,463	+ 479	35¾	124,509	+ 14,032
„ Total	„ 18	15,749	17,093	+ 1,344	35¾	641,096	+ 32,787
Exeter Corporation	„ 29	727	768	+ 41	44	37,760	+ 618
Glasgow Corporation	„ 11	40,276	44,524	+ 4,248	32	1,430,669	+ 6,466
„ Motor Buses	„ 11	4,641	7,120	+ 2,479	32	192,627	+ 105,384
„ Total	„ 11	44,917	51,644	+ 6,727	32	1,522,296	+ 111,850
Gloucester Corp.	„ 22	488	674	+ 186	42¾	25,692	+ 1,971
Grimsby Corporation	„ 25	1,241	1,448	+ 207	43	63,041	+ 5,604
Halifax Corporation	„ 21	3,929	5,210	+ 1,281	42¼	200,259	+ 15,055
Huddersfield Corp.	„ 25	6,047	6,724	+ 677	43	276,754	+ 4,274
Hull Corporation	„ 25	5,962	6,165	+ 203	43	261,567	+ 1,632
„ Motor Buses	„ 25	1,264	1,501	+ 237	43	61,183	+ 8,105
„ Total	„ 25	7,226	7,666	+ 440	43	322,750	+ 9,737
Ilford Corporation	„ 25	1,429	1,510	+ 81	42½	64,772	+ 1,231
Ipswich Corp. Trol.Bus	„ 25	1,163	1,248	+ 85	43	55,785	+ 3,805
Isle of Thanet	„ 22	331	361	+ 30	3½	1,155	+ 76
Kilmarnock Corp.	„ 25	397	485	+ 88	36½	17,601	+ 1,247
Lancashire Un.	„ 19	2,286	2,353	+ 67	2¼	6,281	— 81
„ Motor Buses	„ 19	3,685	4,610	+ 925	2¼	12,642	+ 2,398
Leeds Corporation	„ 25	17,828	19,718	+ 1,890	42½	844,318	+ 26,914
Leicester Corp.	„ 25	7,065	8,515	+ 550	43	364,689	+ 18,320
Lincoln Corp.	„ 26	836	898	+ 62	43	40,112	+ 1,831
Liverpool Corp.	„ 25	26,873	30,031	+ 3,158	42½	1,299,767	+ 24,148
London County Coun.	„ 29	78,519	82,929	+ 4,410	43½	3,642,691	+ 54,057
Luton Corporation	„ 22	326	382	+ 56	42¼	17,391	+ 1,058
Maidstone Corp.	„ 23	187	139	— 48	42¼	8,309	— 2,997
„ Motor Buses	„ 23	231	339	+ 108	42¼	13,652	+ 4,016
„ Trolley Buses	„ 23	268	285	+ 17	42¼	13,100	+ 1,658
„ Total	„ 23	686	763	+ 77	42¼	35,061	+ 2,677
Manchester Corp.	„ 25	33,238	35,002	+ 1,764	43	1,508,525	+ 11,690
„ Motor Buses	„ 25	4,276	5,116	+ 840	43	214,615	+ 32,206
„ Total	„ 25	37,511	40,118	+ 2,604	43	1,722,540	+ 43,896

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS—*Continued.*

Name.	Week ended	Latest Return. 1928-29.	1929-30.	+ or —	Aggregate. Wks.	1929-30.	+ or —
		£	£	£		£	£
Middlesbrough Corp.	Jan. 21	1,189	1,122	— 67	42¾	48,356	— 470
„ Motor Buses	„ 21	475	555	+ 80	42¾	22,389	+ 3,333
„ Total	„ 21	1,664	1,677	+ 13	42¾	70,745	+ 2,863
Newcastle-on-Tv. Corp.	„ 25	8,663	8,968	+ 305	43	426,188	+ 19,828
„ Motor Buses	„ 25	1,685	2,108	+ 423	43	87,202	+ 7,499
„ Total	„ 25	10,348	11,076	+ 728	43	513,690	+ 27,327
Newport Corporation	„ 18	643	764	+ 121	42	32,406	+ 2,175
„ Motor Buses	„ 18	1,564	1,710	+ 146	42	71,203	+ 296
„ Total	„ 18	2,207	2,474	+ 267	42	103,699	+ 2,471
Northampton Corp.	„ 24	1,246	1,126	— 120	42½	48,135	— 14,525
„ Motor Buses	„ 24	383	658	+ 275	42½	28,866	+ 15,861
„ Total	„ 24	1,629	1,784	+ 155	42½	77,001	+ 1,136
Nottingham Corp.	„ 23	6,132	6,235	+ 103	42¾	279,337	— 10,576
„ Motor Buses	„ 23	1,998	2,972	+ 976	42¾	106,346	+ 24,598
„ Trolley Buses	„ 23	538	610	+ 72	42¾	25,516	+ 1,533
„ Total	„ 23	8,666	9,817	+ 1,151	42¾	411,199	+ 15,555
Oldham Corporation	„ 25	3,356	3,807	+ 451	44	158,152	— 15,197
„ Motor Buses	„ 25	1,767	2,161	+ 394	44	88,729	+ 26,531
„ Total	„ 25	5,123	5,968	+ 845	44	246,881	+ 11,334
Plymouth Corp.	„ 25	3,401	3,352	— 49	42½	162,503	— 3,161
„ Motor Buses	„ 25	1,767	2,073	+ 306	42½	87,096	+ 12,887
„ Total	„ 25	5,168	5,425	+ 257	42½	249,599	+ 9,726
Portsmouth Corp.	„ 25	4,652	5,958	+ 1,306	43	279,233	+ 13,059
Preston Corporation	„ 22	1,594	1,665	+ 71	42¾	73,699	+ 1,094
„ Motor Buses	„ 22	422	504	+ 82	42¾	21,322	+ 2,682
„ Total	„ 22	2,016	2,169	+ 153	42¾	95,021	+ 3,776
Rawtenstall Corp.	„ 26	836	837	+ 1	43	36,658	— 1,961
„ Motor Buses	„ 26	456	545	+ 89	43	22,561	+ 3,102
„ Total	„ 26	1,292	1,382	+ 90	43	59,219	+ 1,141
Reading Corporation	„ 23	1,403	1,472	+ 69	43	65,773	+ 307
„ Motor Buses	„ 23	786	881	+ 95	43	39,765	+ 2,438
„ Total	„ 23	2,189	2,353	+ 164	43	105,538	+ 2,745
Rochdale Corp.	„ 25	2,804	2,813	+ 9	...	124,169	— 12,057
„ Motor Buses	„ 25	1,245	1,642	+ 397	...	68,409	+ 10,513
„ Total	„ 25	4,049	4,455	+ 406	...	192,578	— 1,544
Rotherham Corp.	„ 20	2,343	2,770	+ 427	43	118,353	+ 9,695
Salford Corporation	„ 26	10,006	11,408	+ 1,402	43	484,739	+ 31,247
Sheffield Corp.	„ 25	19,769	21,048	+ 1,279	43	903,582	+ 29,284
Southampton Corp.	„ 22	3,057	3,421	+ 364	43	147,126	+ 7,845
„ Motor Buses	„ 22	634	900	+ 266	43	35,039	+ 9,300
„ Total	„ 22	3,691	4,321	+ 630	43	182,165	+ 17,235
Southend-on-Sea Corp.	„ 29	1,666	1,933	+ 267	42½	106,273	+ 505
Southport Corp.	„ 25	1,301	1,507	+ 206	42¾	73,375	+ 235
St. Helens Corp.	„ 21	1,919	1,988	+ 69	42¾	87,154	+ 5,751
Sunderland Corp.	„ 26	2,118	2,400	+ 282	43	105,305	+ 4,106
Swindon Corp.	„ 15	554	889	+ 335	41½	34,183	+ 9,644
Wallasey Corp.	„ 25	1,116	1,144	+ 28	42¾	56,385	— 35,392
„ Motor Buses	„ 25	1,528	1,878	+ 350	42¾	90,015	+ 52,730
„ Total	„ 25	2,644	3,022	+ 378	42¾	146,400	+ 17,338
Walsall Corporation	„ 19	3,179	3,629	+ 450	42	145,732	+ 12,646
Walthamstow Corp.	„ 25	2,116	2,379	+ 263	43	105,141	+ 7,462
Warrington Corp.	„ 23	843	928	+ 85	43	38,536	— 972
„ Motor Buses	„ 23	405	481	+ 76	43	19,813	+ 3,289
„ Total	„ 23	1,248	1,409	+ 161	43	58,349	+ 2,317
West Ham. Corp.	„ 23	5,385	6,314	+ 929	42¾	260,868	+ 22,956
Wolverhampton Corp.	„ 19	Nil	Nil	Nil	42	Nil	— 15,958
„ Motor Buses	„ 19	2,596	2,734	+ 138	42	117,867	+ 16,945
„ Trolley Buses	„ 19	3,102	3,485	+ 383	42	141,952	+ 23,802
„ Total	„ 19	5,698	6,219	+ 521	42	259,819	+ 24,789
York Corporation	„ 22	883	955	+ 72	43	45,174	+ 247
„ Motor Buses	„ 22	332	495	+ 163	43	18,097	+ 4,252
„ Total	„ 22	1,215	1,450	+ 235	43	63,271	+ 4,499

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

Name.	Week or M'th.	Latest Return. 1928-29.	1929-30.	Aggregate. Wks. or *Ms.*	1929-30.	In. or Dec.
Anglo-Argentine	Jan. 28	£84,212	£79,867	4 w	£331,272	— £12,943
Brazilian Traction $	Dec.	$3,673,548	3,984,311	12 *m*	49,351,215	+ 6,576,402
British Columbia $	Nov.	1,192,080	1,270,922	5 *m*	5,905,951	+ 373,718
Buenos Aires Lacroze	Jan. 26	13,177	12,440	30 w	345,068	— 31,065
Burma E. Sup. Co. Rs.	Dec.	62,582	63,485	5 *m*	313,337	— 24,223
Calcutta ... Rs.	Jan. 25	130,173	122,616	34 w	454,925	— 64,942
Cape Town	Dec.	32,709	30,332	...	...	...
Carthagena & Herrerias	Dec.	676	1,314	12 *m*	13,367	+ 277
Durban	Dec.	26,123	25,452	5 *m*	120,976	+ 2,106
East India	Dec.	3,670	3,721	5 *m*	19,982	+ 734
Kalgoorlie	Oct.	1,738	1,703	10 *m*	17,174	— 291
La Plata	Dec.	10,300	10,327	12 *m*	116,149	+ 2,604
Madras (2 weeks) Rs.	Jan. 15	48,790	49,351	2 w	49,351	+ 561
Para	Dec.	14,360	14,487	1 *m*	14,487	+ 127
Port Elizabeth ...	Dec.	9,830	9,115	...	...	...
Rangoon ... Rs.	Dec.	130,110	138,400	12 *m*	1,486,686	+ 8,290
Shanghai ... $	Dec.	321,970	345,415	12 *m*	4,073,322	+ 370,577
Singapore ... ...$	Dec.	111,000	129,000	3 *m*	388,000	+ 57,000
Winnipeg ... ...$	Nov.	553,186	597,391	11 *m*	5,993,875	+ 303,276

RAILWAY RECEIPTS.

4th Week ended Jan. 26th.	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week.	Inc. or Dec. to Date.
G.W.R.	184,000	Nil	359,000	+ 6,000	543,000	+ 6,000	+ 26,000
L.M.S.R.	421,000	+ 3,000	839,000	— 15,000	1,260,000	— 12,000	— 39,000
L.N.E.R.	284,000	+ 3,000	720,000	+ 11,000	1,004,000	+ 17,000	+ 23,000
S.R.	262,000	+ 14,000	108,000	— 3,000	370,000	+ 11,000	+ 31,000
Totals	1,151,000	+ 20,000	2,026,000	+ 2,000	3,177,000	+ 22,000	+ 41,000

ELECTRIC RAILWAYS.

Name.	Week Ended.	Latest Return. 1929.	1930.	+ or —	Aggregate. 1930.	+ or —
London Underground						
Common Fund Cos.	Jan. 25	269,100	302,100	+ 33,000	1,094,900	+ 110,500
Lond. & Sub. Group	„ 25	37,800	44,300	+ 6,500	160,300	+ 23,300
Metropolitan Railway	„ 25	34,900	36,900	+ 2,000	147,900	+ 6,100
Liverpool Overhead	„ 26	1,524	1,597	+ 73	6,489	— 89
Mersey Railway ...	„ 25	4,450	4,592	+ 142	20,072	+ 666

Digitized by Google

THE
Tramway and Railway World

FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.
Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates—

FOR THE UNITED KINGDOM—Twenty-five shillings per annum.

FOR ALL PLACES ABROAD—Twenty-five shillings per annum. Postage to Canada, 6s.; to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS.

LONDON, FEBRUARY 8, 1930.

EXPANSION OF THE TRACTION INDUSTRY.

That the name be changed to the Tramways, Light Railways and Transport Association will be one of the resolutions to be proposed at a special meeting of the Tramways and Light Railways Association to be held next Tuesday afternoon. The proposed alteration received general support at last year's Congress, and the need for the change has been evident for some years. The addition of the word transport to their names was effected several years ago by the Municipal Tramways Association and the Scottish Tramways Association, and the organisation that so effectively cares for the interests of the company undertakings has clearly as great a need to adopt the more comprehensive title. Recent developments in the transport industry have brought changes in the composition of the membership of the Association by the conversion of some tramway undertakings into trolley vehicle or motor omnibus systems. These changes of system have also been accompanied by a noticeable increase in the manufacturing and supply section of the membership. It is no reflection on the founders of the municipal and company associations to say that the advance that has been made in railless mechanical traction was not foreseen at the time of their formation. Apart from the steam road wagon, that advance was then little in evidence, but in two decades the sheer merit of the work of the automobile engineer, the tyre maker, and the body builder has made the passenger-carrying section loom large in the public eye. Now omnibus services are operating until far into the night on the roads connecting distant populous centres. To crown this progress there comes news this week that double-deck coaches are to run from the beginning of March between Edinburgh and London at a fare of one pound. Company members of the Association are among the pioneers of long-distance omnibus services, and it is safe to assume that the force of circumstances will add to their numbers. The Association will therefore be well advised to enlarge its title by the inclusion of "transport," which on the operative and manufacturing sides forms one of Britain's largest industries.

THE OMNIBUSES BILL.

HOUSE OF COMMONS GIVES IT A SECOND READING BY 203 VOTES TO 118.

In the House of Commons yesterday (Friday) afternoon, MR. SCURR (Lab., Mile End) moved the second reading of the Omnibuses Bill, which seeks to make provision for enabling local authorities to provide and run omnibuses within and without their districts. He said the scope of the Bill was limited to those local authorities who were already authorised by Parliament to operate passenger services by tramways, trolley omnibuses, or motor omnibuses, and its purpose was to obviate the cumbrous and expensive process of having to come repeatedly for fresh Parliamentary powers. It would enable working agreements to be entered into by local authorities and other bodies for extensions of services. A return recently issued showed that 947 local Acts and Provisional Orders had been obtained by local authorities for transport powers at a cost of £748,000. The measure would secure real economy in that respect. There were now thirty transport Bills before Parliament. The Bill was supported by every local authority in the country.

MR. ARNOTT (Lab., Kingston-on-Hull) seconded and said the Bill was an attempt to apply the principle of rationalisation and co-ordination to transport.

COL. W. ASHLEY (C., New Forest), moving the rejection of the Bill, said the Minister of Transport would have to throw over either the Government's Road Bill now before Parliament or the present measure, the two being incompatible. The Bill did away with all Parliamentary control over municipalities in regard to transport, and destroyed all safeguards of the ratepayers against the promotion of hare-brained schemes.

MR. HERBERT MORRISON (Minister of Transport) said that Col. Ashley, as President of the Anti-Socialist Union, might be expected to be a whole-hogger against municipal enterprise. His record, however, as Minister of Transport had a pinkish hue about it. (Laughter.) He had officially given seventy-six consents to thirty-two local authorities for running omnibuses on one hundred and thirty-seven routes. He had not only flirted with municipal omnibuses, but he had embraced them. (Laughter.) He was afraid that on his record, Col. Ashley was, from the anti-Socialist point of view, a lost soul. (Laughter.) He did not believe the question, however, to be a political one, and was glad to know there were Conservative members who would vote for the Bill, or go home by an early train. (Laughter.) He regarded the matter as one of reasonable justice to local authorities in competition with privately owned undertakings.

"As to the relations between the present Bill and Part 5 of the Road Traffic Bill," Mr. Morrison continued, "I want to make it absolutely clear that on the principle of this Bill, and on the principle of Part 5 of the Road Traffic Bill, the Government will not budge. Given the support of the House of Commons, we are going to put that principle through."

There were, he admitted, differences between the two. He himself thought Part 5 the better (laughter), but the Government would not hesitate to reconcile the two, and bring them into harmony. He was perfectly willing to listen to those who desired safeguards inserted, but, he went on, "I have never had a chance to do it. They have not come to me. They have been busy in the House of Lords, which cut out that part of the Bill. I am always willing to negotiate. The interests concerned really ought to understand that it is better to come and talk about matters, and see what can be done on points of detail. On the main principles we shall not budge."

It was intended, after the second reading of the Road Traffic Bill, either to instruct the Committee that it was to re-incorporate Part 5, or to secure that both the Road Traffic Bill and the present measure should be considered by the same Committee, with instructions that it had power to amalgamate the two. He hoped the Bill would be given a second reading by a large majority.

COL. HOWARD-BURY (C., Chelmsford), opposing the Bill, said it was not a question of Socialism, but of giving ratepayers fair protection against their councillors.

MR. MANDER (Lib., Wolverhampton) favoured giving municipalities an equal position with omnibus-owning companies.

SIR G. RENTOUL (C., Lowestoft) objected to the Bill as embodying the principle of "municipal trading unlimited." Private enterprise should have some reasonable protection for the capital it had expended.

MR. WOMERSLEY (C., Grimsby), whose name appears as one of the backers of the Bill, said that after hearing the debate he was still unrepentant. He was quite satisfied he had done the right thing. There was no "Socialism" in endeavouring to secure fair conditions for local authorities which carried on transport undertakings.

The second reading was carried by 203 votes to 118.

The T.O.T. Philharmonic Society will give four evening performances of the operetta "The Lilac Domino" at the New Scala Theatre, beginning on Wednesday, February 19, at 8 p.m. There will be a matinée on Saturday, February 22, at 2 p.m. This is the first occasion on which the revised version has been played in London under the personal direction of Mr. William J. Wilson, the original producer in 1918. "The Lilac Domino" is the twentieth production of the operatic section of this society which, with the orchestra, numbers about 150 members recruited from the staff of the Underground and its allied companies.

Digitized by Google

A QUICK-LOADING LONDON OMNIBUS.

Profiting by experience gained, in co-operation with the management of the Metropolitan Tramways Company, in producing for that company the automobile engineer's and body-builder's idea of what a tramcar should be, the Chiswick works of the London General Omnibus Company have now brought out a quick-loading double-deck omnibus. Known as the S.T. type, the vehicle may be described as the last word in comfort obtained from springing, air tyres and attractive seats, while the new design of body, judging by the operation of a somewhat similar rear end on the M.E.T. cars, should serve the desired purpose of reducing the time spent at stopping places, with a consequent lessening of street congestion. Six of the type are being placed in service, and yesterday (Friday) afternoon Press representatives were afforded a view of one of them at the Chiswick works.

The S.T. type has a platform which is specially wide and deep, and is capable of holding ten persons. The extra space is gained by placing the staircase to the upper deck alongside the entrance to the lower saloon, the passenger stepping off the stairs into the top saloon at a point near the centre of the omnibus. The idea underlying this arrangement is that passengers may be got on to the vehicle quickly, and pass to one or other saloon as the omnibus moves away.

The platform is enclosed on two sides. A quick release window is fitted to the rear end of the upper deck, through which passengers can drop to the ground.

GLASGOW TRAMWAY VETERANS.

DINNER IN THEIR HONOUR BY THE TRANSPORT COMMITTEE.

Glasgow Corporation Transport Committee on January 29 entertained at dinner forty-five men and four women employees who, on July 1 last, had completed 35 years' service. Special medals were presented to these guests, all of whom had been associated with the service since it was taken over by the Corporation in 1894. The company, which numbered about 200, included a number of superannuated employees who, if they had still been actively connected with the department, would also have had thirty-five years' service. Councillor P. J. Dollan, convener of the Transport Committee, presided, and among those present were the Lord Provost, the members of the committee, Mr. L. Mackinnon, general manager, and Mr. James Dalrymple, the late general manager. Among those who received medals were Mr. Mackinnon, Mr. James Wilson, deputy manager, and Mr. P. S. Smith, traffic superintendent.

Mr. Dollan, in proposing "The Health of the Veteran Employees," spoke of the possibility of a Clyde Transport Trust being formed to supervise road transport services in the same manner as the Clyde Navigation Trust conducted river transport. That would remove boundaries and prevent overlapping, and it would secure co-operation and efficiency. Referring to the history of the department, Mr. Dollan said that during the past 35 years the number of employees had increased from 300 to 8,100. Lord Provost Kelly proposed "The Transport Committee," and Mr. James Dalrymple replied for the superannuated employees, proposed by the chairman.

THE CHANGE OVER AT CHESTER.

On February 15 Chester tramway services will be discontinued and the place of the cars will be taken by omnibuses. Commenting on the change of system a correspondent of the "Manchester Guardian" says that Chester is a "bridge" town on the highway to Wales and the West, and a large volume of through traffic has to pass through narrow streets. In such circumstances the tramways were thought to add to the congestion, but it is not anticipated that the substitution of omnibuses will do much to relieve the congestion. The only way to effect much improvement will be the construction of a by-pass road.

Another reason for the change was that the Corporation thought that the cost of track reconstruction was prohibitive. It is estimated that the 6½ miles of single track would require an expenditure of £60,000. The eighteen cars would soon need replacement, and to avoid this heavy expenditure the Council decided to expend about £30,000 in providing six double-deck 60-seat omnibuses and ten single-deck 30-seat omnibuses. By an Act obtained last year the Corporation is empowered to run their omnibuses in an area extending 3½ miles from the centre of the city and to make working agreements with other operators within a radius of eleven miles from the centre.

At present the Council proposes to run omnibuses only half-a-mile beyond the tramway termini. The routes served will be increased to about nine miles, and it is estimated that the vehicles will run 600,000 omnibus miles annually. The tramcar mileage was about 345,000. The capital expenditure on the tramways stands at £85,934. Of this sum £43,827 represents unpaid debt on which there is annually interest and sinking fund charge of about £4,200, which will be payable for the next thirteen years. The Corporation estimate that the omnibuses will earn sufficient to meet this charge, to pay interest and sinking fund on the capital outlay for the sixteen omnibuses (about £30,000) based on an assumed life of eight years per omnibus, meet working expenses and yield a small surplus. The eighteen tramcars have been sold for about £540.

Sunday Transport at Colwyn Bay.—On February 2 the Llandudno and Colwyn Bay Electric Railway Company, Ltd., supplied a transport service, following the decision of the ratepayers on January 20.

MISCELLANEOUS NEWS AND NOTES.

Private Bill Legislation.—The Barnsley and District Traction Bill and the Hastings Tramways Company (Trolley Vehicles and Omnibuses) Bill were read a second time in the House of Lords on February 4.

Cost of Energy at Sheffield.—Sheffield Electricity Committee has made such a reduction in the charges for electricity supplied to the Tramways and Motors Department as will amount to a total of £13,000 per annum.

Protection of London Motormen.—The Highways Committee of the London County Council arranged some time ago as an experiment for three tramcars to be equipped in the Tramways Department with means of protection for motormen during inclement weather. The expenditure sanctioned was not to exceed £255.

Kidderminster-Stourport Tramways.—Stourbridge Council has agreed to the proposal of the Tramway Company to abandon the Stourbridge, Dudley, Wollaston and Kinver service. The Council has consented subject to the Birmingham and Midland Omnibus Co. giving an assurance to maintain sufficient services at reasonable fares.

Sheffield Corporation Bill Rejected.—By a large majority, Sheffield Corporation Bill which had been brought in by the Labour majority in the City Council, was rejected on February 1, at a poll of the city ratepayers. The third clause would have empowered the Corporation to build an omnibus transport station, at which oil, petrol and refreshments would be sold by the municipality.

British Engineering Standards Association.—Revisions of earlier specifications have been issued as follow: No. 132-1930, steam turbines for electrical plant; No. 215-1930, aluminium and steel-cored aluminium conductors for overhead lines. Copies of the specifications, at 2s. 2d. each, may be obtained from the British Engineering Standards Association, 28, Victoria Street, S.W.1.

London Tramways and Omnibus Powers.—At a meeting of the Erith Council recently it was reported that the Metropolitan Municipal Tramways Council had decided to send a deputation to the Municipal Tramways and Transport Association to press for the inclusion in the Omnibus Bill which the Association is promoting of powers for Metropolitan tramway undertakings to run omnibuses.

A Birmingham Substitution.—On February 5 the Bolton-road tramway service of Birmingham Corporation was discontinued and motor omnibuses were substituted for the tramways. In May last the City Council decided to abandon both the Bolton-road and Hagley routes, as the tracks were in need of reconstruction, and it was estimated that when this was done the routes could not be operated except at a loss.

Sheffield Tramway Fares.—The Tramways Committee of Sheffield Corporation has recommended a reduction in the maximum tramway fare on June 1 from 2d. to 1½d. The reduction will allow travelling through from one boundary terminus to another, a double journey of up to eight miles, for 3d. A pledge was given by the Labour Party at the municipal election of 1926 to reduce the fares, and it was renewed at the last municipal election. Originally the fares were 1d. from the city to terminus, with ½d. sections, but the latter fare was abolished during the war.

Wallasey Omnibus Scheme.—A sub-committee of the Wallasey Tramways Committee proposes to recommend that the borough treasurer and other officials be instructed to prepare the scheme for the change over from the tramcars to motor or trolley omnibuses within five years. The Tramways Committee and other officials will be authorised to visit Wolverhampton to inspect the trolley omnibus system there. The Committee ask for a revision of the charge for electric energy on the basis of the price now charged for street lighting. Tramcars now run on three routes only.

Northern Ireland Fares Tribunal.—In accordance with the powers granted by the Motor Vehicles and Road Traffic Act (1929), Northern Ireland, Sir Lynden Macassey, K.B.E., K.C., Mr. David Lionel Clare, O.B.E., and Mr. Adrian Robinson, have been appointed as the Tribunal to fix fares and rates for public service vehicles. The first meeting will be held in Hollywood Town Hall on February 11 to hear and to decide on an application made by the Belfast and County Down Railway Company to increase the fares chargeable in connection with the Company's omnibuses that ply between Belfast and Hollywood.

London to Edinburgh for £1.—Thomson's Tours, Ltd., of Edinburgh, propose, on March 1, to extend their arrangements for long distance travel. New double-deck omnibuses will be run between London and Edinburgh. The omnibus will seat 40 passengers and the route will be the same as that followed in last year's service by the Great North Road, Darlington and Grantham, and this year the fare will be £1 for a single journey. The railway fares are 49s. 6d. single, 82s. 6d. return. It is estimated that 10,000 persons were carried last year by single-deck omnibuses. Services will be arranged to Liverpool, Manchester and other Midland towns.

Services While the London Subway is Closed.—With the closing on February 3 of the Kingsway-Embankment subway the Highgate service of tramcars now run to and from Bloomsbury only. Double-deck Pullman cars with a saloon for smokers are being used. There is almost a twenty-four hour service, as the all-night services to other parts are continued. Special transfer facilities are available between Bloomsbury, Holborn, and Farringdon-road and the Embankment services. The London General Omnibus Co. is operating an omnibus service between Bloomsbury, Kingsway, and Charing Cross, returning via the Embankment to the Strand and North London.

Digitized by Google

L.U.T. Experiment With Trolley Omnibuses.—An announcement by the London United Tramways Co. states that, while under the terms of their Parliamentary Bill they are seeking powers to abandon any part of their system for the purpose of operating trolley omnibuses, they do not intend, in the event of the Bill being passed, to do more in the first instance than carry out experiments on certain parts of their system. It may be necessary to experiment in several areas before a satisfactory conclusion can be reached, and it is for this reason that they are seeking the powers over the whole system. The first experiment will probably be in the Kingston area.

Mines Bill and Cost of Coal.—A joint conference of public utility associations has passed a resolution stating that Part I of the Coal Mines Bill will result in an undue and unfair increase in the price of coal to public utility undertakings and will constitute a danger to the industrial revival. The associations represent tramway and electricity and gas and water interests. Sir Josiah Stamp, president of the L.M.S. Railway, has also uttered a warning as to the effect on prices of a subsidy on the export of coal. An increase of 2s. 6d. per ton would increase the L.M.S. coal bill by £950,000. That might be recovered in three ways—a reduction of the present modest dividend, an addition to freight rates, or a reduction in the employees' wages.

Trolley Omnibuses at Nottingham.—Nottingham Transport Committee has fixed the fares on the Arnold trolley omnibus route at 3d. as a maximum fare. The fares work out at ¾d. a mile. Of the 20 double-deck omnibuses ordered, six have been delivered, and nine more were expected before the end of January. The last five will have a special type of body, built to the design of Mr. W. G. Marks, the transport manager, provision being made for a central entrance. The vehicles have been manufactured by the English Electrical Co., are equipped with an 80-h.p., motor and have seats for 60 passengers. The new trolley omnibus route from St. Anne's Well-road to Wilford-bridge, will, it is expected, be open about the end of February.

Track Renewal and the Unemployment Fund.—At a special meeting of the Rochdale Tramways Committee, a report from the borough surveyor and the transport manager on the condition of nine sections of track in various parts of the borough was considered. In order to maintain these sections in a usable condition for the remainder of the loan period, it was stated that it would be necessary to carry out repairs at an estimated cost of £28,000. The scheme was approved in principle and the work is to be put in hand, subject to a grant towards the cost from the Unemployment Grants Committee. Alderman H. Clark (chairman of the Tramways Committee), the town clerk, the borough surveyor, and the transport manager were deputed to interview the Government Department with a view to obtaining such a grant. The committee has decided to cover eleven open-top cars.

Motor Cars and Omnibuses for Belfast.—At a meeting of the Belfast Town Council on February 3, objection was made to sending out of the city work which some persons maintain could be done there. Councillor McClure, chairman of the Tramways Committee, referred to the question of additional tramcars and omnibuses, and assured the deputation from the National Union of Electrical Builders and the Belfast Trades Council that the committee desired that as much of the work as possible should be carried out in Belfast. The general manager of the tramways had informed the committee that with the means at his disposal he could not undertake any such work at present. The committee had discussed the question of placing the work with local firms when tenders were invited, and the manager stated that the tenders should be split up, in order to give local firms a chance of tendering, and that he would communicate with them specially on the subject. The Council authorised the manager to advertise for tenders for six double-deck omnibuses and six additional tramcars.

CONTRACTS.

Leeds Tramways Committee has accepted the tender of the Leeds Fireclay Co., Ltd., at £645 18s., for the supply of cable conduits.

Bolton Tramways Committee has authorised the purchase of five additional Titan double-deck omnibuses from Leyland Motors, Ltd.

Glasgow Tramways Department has placed an order with the British Thomson-Houston Company for 2,000 Mazda traction lamps.

Salford Tramways Committee has recommended the acceptance of the tender of the Bell Punch and Printing Co., Ltd., for supply of 100,000,000 tickets and the hire of 800 punches for twelve months, at £3,800.

Manchester Tramways Committee is obtaining tenders for the supply of 20 motor omnibus chassis and fifteen single-deck motor omnibus bodies. Fifteen other single-deck bodies will be built at the Corporation's Hyde-road car works.

Liverpool Tramways Committee has placed contracts for the supply and maintenance of motor omnibus tyres for the twelve months ending December 31, 1930, with Henley's Tyre and Rubber Co., Ltd., and the Dunlop Rubber Co., Ltd.

Omnibuses with Twin Enclosed Staircases.—Wallasey Tramways Committee has decided to purchase three double-deck Leyland motor omnibuses, with twin enclosed staircases, at a cost of £1,746 each, and three new Daimler vehicles of a similar type, at a cost of £1,800 each.

Manchester Tramways Committee has accepted the tender of Crossley Motors, Ltd., for the supply of a Crossley motor car with landaulette body, and of Halley Motors, Ltd., for the supply of two petrol motor tipping wagons.

B.E.N. Patents, Ltd., are to instal car washing and disinfecting plant at the ambulance stations of the Metropolitan Asylums Board. The amount of their tender was £1,117.

The Metropolitan Asylums Board has recommended the acceptance of the tender of the British Goodrich Rubber Co., Ltd., for a portion of their requirements of tyre covers and tubes.

Eastbourne Omnibus Committee has placed an order with Leyland Motors, Ltd., for six double-deck top-covered omnibuses at the cost of about £1,700 each. The committee has also accepted the tender of the Anglo-American Oil Company, Ltd., for the supply of petrol at 1s. 0½d. per gallon.

York Buys Burton Cars.—York Transport Committee has recommended the purchase from the Corporation of Burton-on-Trent of four tramcars at the price of £152 each, free on rail at Burton. The estimated cost of transporting the cars to York and adapting them is £100 per car. The committee has also recommended the acceptance of the tender of W. West, Ltd., of York, for the excavations in connection with the new garage, at the price of £1,163.

London County Council received the following tenders for the supply of track materials and fishplates during the year ending April 1, 1930: Dorman, Long & Co., Ltd., £53,896 17s. 6d.; Cargo Fleet Iron Co., Ltd., £54,828 15s. The tender of Dorman, Long & Co., Ltd., which was comparable with the tramways general manager's estimate, was accepted. The following acceptances of tenders are notified in the report of the Highways Committee for the past quarter: Frodingham Iron and Steel Co., Ltd., for tramway conductor rails, £7,232; the British Vacuum Cleaner and Engineering Co., Ltd., cleaning plant for tramcar seats at £99 3s.; G. D. Peters & Co., Ltd., protection plates for bulkhead ends on longitudinal seats on 520 tramcars.

Glasgow Prefers Home Industry.—Glasgow Transport Committee have had before them various offers for the installation of turbo-alternators for the Pinkston power station. A report was submitted by the transport manager (Mr. L. Mackinnon) and by Professor Howe, chief of the electrical department of Glasgow University, dealing with the offers and specifications. The committee decided unanimously to recommend that the offer of the Metropolitan Vickers Electrical Co., Ltd., for installing a turbo-alternator at £50,450 should be accepted. The plant will include a condenser made by Messrs. G. & J. Weir at a cost of £9,448. Several offers were received from Continental firms, some of which were lower than the lowest British offer, but the committee felt that in view of the existing conditions in Britain it was preferable that the work should be done here.

FINANCIAL.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended February 5 amounted to £82,460, an increase of £3,749 compared with the corresponding week of last year. The route length was 165.55 miles, as compared with 165.78 a year ago. From April 1 (the commencement of the financial year) to February 5 (44 3-7 weeks) the total receipts were £3,725,854), an increase of £57,968.

Municipal Transport Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended January 18 give total receipts of £415,217, or £29,025 more than in the corresponding week of last year. The aggregate receipts for 42 weeks amounted to £17,485,358, an increase of £773,311 over the corresponding period of last year.

Sheffield Estimates.—The Tramways and Motors Committee estimate the tramway receipts for the year ending March 31, 1930, at £918,011, and for the following year at £883,656. The estimated expenditure to March 31, 1930, is £907,301. Estimated receipts on the omnibuses to March 31 next are £184,566, and for the following year £208,228. Expenditure for the two years is estimated at £184,208 and £207,936 respectively.

Tyneside Tramways and Tramroads Co.—The report for the half-year ended December 31, 1929, shows a loss on working of £208 12s. Allowing for interest on mortgages, etc., there is a deficit of £1,783. The sum of £1,800 has been transferred from general reserve account, and there remains a balance of £35 to be carried forward. The Bill promoted in Parliament received Royal Assent as the Tyneside Tramways and Tramroads Act, 1922, on December 20, 1929. Since that date the holders of the mortgages and the shareholders have passed resolutions authorising the creation of prior mortgages to an amount not exceeding £26,370. Mr. H. B. Poynder has been appointed a director in the place of Mr. J. H. Armstrong, who has resigned.

The English Electric Company has announced proposals for the reorganisation of capital which, if carried out, will supply the company with fresh funds and place its finances on a sound basis. The directors have secured the co-operation of Messrs. Lazard Brothers & Co., Ltd., who have agreed on behalf of themselves and their associates to subscribe at par and pay up in cash 750,000 ordinary shares of £1 each, provided that the preference share and debenture holders agree to certain terms for the rearrangement of their holdings. It is stated that the control of the company will remain, as hitherto, in British hands. The directors advise the debenture and shareholders to agree to the sacrifices involved in the scheme as the only way of re-establishing the position of the company. The directors are satisfied that the reputation of the company's products stands higher than ever before, and if the present scheme is carried out they have no doubt that the company wil l obtain a substantially increased business.

Digitized by Google

PERSONAL.

Mr. C. E. Ayres, formerly traffic superintendent of the East Surrey Traction Co., Ltd., has been appointed traffic manager of that company and Auto Services, Ltd.

Mr. C. H. Stafford, deputy manager and chief assistant engineer of Reading Corporation Tramways, has been appointed manager of Burnley Corporation Tramways and Omnibuses.

Mr. R. H. Wilkinson, general manager and engineer of Bradford Corporation Tramways, who has been indisposed for some time, is, we are pleased to learn, much better, although he has not yet been able to resume his duties.

Mr. W. Simmons, late works manager of Gleniffer Motors, Ltd., Glasgow, has been appointed general manager of A. Wiseman, Ltd., Birmingham (of which Mr. Alfred Wiseman is governing director), manufacturers of gear wheels and pinions and overhead material for tramways and electric railways.

Mr. George Tough is retiring from the post of city electrical engineer of Coventry on attainment of the age limit of 65 years under the Superannuation Act. Mr. W. J. Marston, assistant electrical engineer since 1911, has been recommended for the vacancy by the Electricity Committee, at a salary of £1,150 per annum.

Mr. T. A. G. Margary is recommended by Wolverhampton Electricity Committee for appointment as borough electrical engineer and manager, at a salary of £1,000 per annum, rising by annual increments of £50 to a maximum of £1,200. For the past eleven years Mr. Margary has been the distributing superintendent of the electricity department.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

Name.	Week ended	Latest Return. 1929	1930	+ or —	Aggregate. Wks	1929-30	+ or —
		£	£	£		£	£
Aberdare U.D.C.	Feb. 4	517	568	+ 51	44¾	26,483	+ 2,690
„ Motor Buses	„ 4	260	288	+ 28	44¾	11,525	+ 1 778
„ Total	„ 4	777	856	+ 79	44¾	38,008	+ 4,468
Aberdeen Corp.	Jan. 29	3,906	4,250	+ 344	35¾	176,287	+ 14,727
Ashton-u-Lyne Corp.	„ 25	794	905	+ 111	43	39,457	+ 1,517
„ Motor Buses	„ 25	424	492	+ 68	43	20,916	+ 2,836
„ Trolley Buses	„ 25	270	294	+ 24	43	12,150	— 656
„ Total	„ 25	1,488	1,691	+ 203	43	72,523	+ 3,697
Ayr Corporation	Feb. 1	392	439	+ 47	37	22,873	+ 1,416
Belfast City	Jan. 31	9,698	11,095	+ 1,397	43½	489,100	+ 81,832
„ Motor Buses	„ 31	857	1,298	+ 441	43¾	48,436	+ 33,631
„ Total	„ 31	10,555	12,393	+ 1,838	43½	537,536	+ 115,463
Birkenhead Corp.	Feb. 2	1,600	1,459	— 141	44	72,622	— 9,915
„ Motor Buses	„ 2	2,727	3,084	+ 357	44	156,479	+ 29,963
„ Total	„ 2	4,327	4,543	+ 216	44	229,101	+ 20,048
Birmingham Corp.	Jan. 28	26,851	27,230	+ 379	43	1,183,791	+ 17,223
„ Motor Buses	„ 28	11,467	14,430	+ 2,963	43	581,216	+ 103,203
„ Trolley Buses	„ 28	547	579	+ 32	43	24,453	+ 748
„ Total	„ 28	38,865	42,239	+ 3,374	43	1,789,460	+ 121,174
Blackburn Corp.	„ 29	1,908	1,908	Nil	43¾	84,504	— 4,532
„ Motor Buses	„ 29	Nil	342	+ 342	12¾	4,447	+ 4,447
„ Total	„ 29	1,908	2,250	+ 342	43¾	88,951	— 85
Bradford Corporation	Feb. 1	13,603	14,504	+ 901	44	654,107	+ 35,474
Brighton Corporation	„ 2	1,944	2,179	+ 235	44	115,267	+ 2,974
Burnley Corporation	„ 1	2,856	2,810	— 46	—	...	...
„ Motor Buses	„ 1	623	653	+ 30	...	...	...
„ Total	„ 1	3,479	3,463	— 16	...	...	...
Burton-on-Trent Cpn.	„ 2	442	854	+ 412	44	22,977	+ 4,584
Bury Corporation	„ 2	2,066	1,765	— 301	44	87,644	— 8,825
„ Motor Buses	„ 2	309	810	+ 501	44	26,433	+ 10,011
„ Total	„ 2	2,375	2,575	+ 200	44	114,077	+ 1,186
Cardiff Corporation	Jan. 25	6,751	7,542	+ 791	42⅝	332,455	+ 5,621
Chatham and District	„ 30	970	1,038	+ 68	4	4,637	+ 218
Chesterfield Corp.	Feb. 3	1,922	1,949	+ 27	44	87,006	+ 3,385
Colchester Corp.	Jan. 29	416	557	+ 141	44	24,562	+ 4,538
Colne Corporation	„ 29	637	655	+ 18	44	31,453	+ 305
Coventry Corporation	Feb. 2	2,140	2,152	+ 12	44	94,721	+ 2,190
„ Motor Buses	„ 2	1,483	1,833	+ 350	44	73,302	+ 19,700
„ Total	„ 2	3,623	3,985	+ 362	44	168,023	+ 21,890
Darlington Corp.	„ 1	1,003	1,020	+ 17	43¾	44,209	+ 1,233
Derby Corporation	„ 1	2,509	2,401	+ 108	44	110,502	— 3,180
„ Motor Buses	„ 1	607	840	+ 233	44	33,746	+ 14,187
„ Total	„ 1	3,116	3,241	+ 125	44	144,248	+ 11,007
Dover Corporation	„ 1	314	357	+ 43	44	18,105	+ 533
Dundee Corporation	Jan. 28	3,099	3,374	+ 275	36⅝	127,929	+ 5,036
East Ham Corp.	Feb. 1	2,170	2,381	+ 211	43½	101,260	+ 4,426
Edinburgh Corp.	Jan. 25	12,251	13,656	+ 1,405	36½	530,244	+ 20,161
„ Motor Buses	„ 25	2,917	3,467	+ 550	36½	127,976	+ 14,582
„ Total	„ 25	15,168	17,123	+ 1,955	36½	658,220	+ 34,743
Exeter Corporation	Feb. 5	756	779	+ 23	45	38,539	+ 641
Glasgow Corporation	„ 1	41,592	43,821	+ 2,228	35	1,562,823	+ 20,464
„ Motor Buses	„ 1	4,787	7,133	+ 2,346	35	214,085	+ 12,995
„ Total	„ 1	46,380	50,954	+ 4,574	35	1,776,908	+ 33,459
Gloucester Corp.	Jan. 29	477	645	+ 168	43½	26,336	+ 2,139
Grimsby Corporation	„ 25	1,241	1,448	+ 207	43	63,041	+ 5,604
Halifax Corporation	„ 28	4,053	5,113	+ 1,060	43¼	205,373	+ 16,115
Huddersfield Corp.	Feb. 1	6,062	6,214	+ 152	44	282,969	+ 4,426
Hull Corporation	„ 1	6,136	6,051	— 85	44	267,619	+ 1,547
„ Motor Buses	„ 1	1,316	1,512	+ 196	44	62,696	+ 8,301
„ Total	„ 1	7,452	7,563	+ 111	44	330,315	+ 9,848
Ilford Corporation	„ 1	1,412	1,499	+ 87	43½	66,271	+ 1,309
Ipswich Corp. Trol.Bus	„ 1	1,156	1,265	+ 109	44	57,060	+ 3,930
Isle of Thanet	Jan. 29	315	333	+ 18	4½	1,488	+ 95
Kilmarnock Corp.	Feb. 1	425	463	+ 38	37½	18,064	+ 1,285
Lancashire Un.	Jan. 26	2,157	2,326	+ 169	3¾	8,603	+ 80
„ Motor Buses	„ 26	3,523	4,584	+ 1,061	3¾	17,246	+ 3,453
Leeds Corporation	Feb. 1	18,275	19,117	+ 842	43⅜	863,387	+ 27,811
Leicester Corp.	„ 1	8,123	8,511	+ 388	44	373,200	+ 18,688
Lincoln Corp.	„ 2	878	879	+ 1	44	40,992	+ 1,832
Liverpool Corp.	„ 1	27,396	29,312	+ 1,916	43¾	1,329,080	+ 26,064
London County Coun.	„ 5	78,711	82,460	+ 3,749	44⅛	3,725,854	+ 57,968
Luton Corporation	Jan. 29	332	378	+ 46	43¼	17,769	+ 1,104
Maidstone Corp.	„ 30	177	131	— 46	43¾	8,440	— 3,043
„ Motor Buses	„ 30	224	330	+ 106	43¾	13,982	+ 4,122
„ Trolley Buses	„ 30	253	277	+ 24	43¾	13,377	+ 1,682
„ Total	„ 30	654	738	+ 84	43½	35,799	+ 2,761
Manchester Corp.	Feb. 1	33,098	34,557	+ 1,459	44	1,543,082	+ 13,149
„ Motor Buses	„ 1	4,238	4,898	+ 660	44	218,913	+ 32,865
„ Total	„ 1	37,336	39,455	+ 2,119	44	1,761,995	+ 46,014

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS—*Continued.*

Name.	Week ended	Latest Return. 1929	1930	+ or —	Aggregate. Wks	1929-30.	+ or —
		£	£	£		£	£
Middlesbrough Corp.	Jan. 28	1,051	1,150	+ 99	43¾	49,507	— 371
„ Motor Buses	„ 28	449	568	+ 119	43¾	22,957	+ 3,452
„ Total	„ 28	1,500	1,718	+ 218	43¾	72,464	+ 3,081
Newcastle-on-Ty. Corp	Feb. 1	8,927	8,799	— 128	44	435,287	+ 19,700
„ Motor Buses	„ 1	1,720	2,061	+ 341	44	80,263	+ 7,839
„ Total	„ 1	10,647	10,860	+ 213	44	524,550	+ 27,539
Newport Corporation	Jan. 25	1,521	1,702	+ 181	43	72,995	+ 477
„ Motor Buses	„ 25	627	766	+ 139	43	32,172	+ 2,314
„ Total	„ 25	2,148	2,468	+ 320	43	105,167	+ 2,791
Northampton Corp.	„ 24	1,246	1,126	— 120	42¾	48,135	— 14,525
„ Motor Buses	„ 24	383	658	+ 275	42¾	28,866	+ 15,661
„ Total	„ 24	1,629	1,784	+ 155	42¾	77,001	+ 1,136
Nottingham Corp.	„ 30	6,282	6,354	+ 72	43¾	285,691	— 10,503
„ Motor Buses	„ 30	2,082	2,925	+ 843	43¾	109,271	+ 25,440
„ Trolley Buses	„ 30	562	605	+ 43	43¾	26,121	+ 1,576
„ Total	„ 30	8,926	9,884	+ 958	43¾	421,083	+ 16,513
Oldham Corporation	Feb. 1	3,497	3,542	+ 45	45	161,695	— 15,151
„ Motor Buses	„ 1	1,827	2,021	+ 194	45	90,750	+ 26,724
„ Total	„ 1	5,324	5,563	+ 239	45	252,445	+ 11,573
Plymouth Corp.	„ 1	3,299	3,284	— 15	43½	165,787	— 3,176
„ Motor Buses	„ 1	1,726	2,110	+ 384	43½	89,116	+ 13,271
„ Total	„ 1	5,025	5,394	+ 369	43½	254,903	+ 10,095
Portsmouth Corp.	„ 1	4,826	5,598	+ 772	44	283,921	+ 12,920
Preston Corporation	Jan. 29	1,602	1,623	+ 21	43½	75,322	+ 1,115
„ Motor Buses	„ 29	433	494	+ 61	43½	21,816	+ 2,743
„ Total	„ 29	2,035	2,117	+ 82	43½	97,138	+ 3,858
Rawtenstall Corp.	„ 26	836	837	+ 1	43	36,658	— 1,961
„ Motor Buses	„ 26	456	545	+ 89	43	22,561	+ 3,102
„ Total	„ 26	1,292	1,382	+ 90	43	59,219	+ 1,141
Reading Corporation	„ 30	1,458	1,494	+ 36	44	67,267	+ 343
„ Motor Buses	„ 30	880	926	+ 46	44	40,692	+ 2,485
„ Total	„ 30	2,338	2,420	+ 82	44	107,959	+ 2,828
Rochdale Corp.	Feb. 1	2,849	2,699	— 150	...	126,868	— 12,208
„ Motor Buses	„ 1	1,258	1,588	+ 330	...	69,997	+ 10,842
„ Total	„ 1	4,107	4,287	+ 180	...	196,865	— 1,366
Rotherham Corp.	„ 3	2,471	2,683	+ 212	45	123,938	+ 10,349
Salford Corporation	„ 2	10,270	11,414	+ 1,144	44	496,153	+ 32,468
Sheffield Corp.	„ 1	20,205	21,039	+ 834	44	924,621	+ 30,118
Southampton Corp.	Jan. 29	2,941	3,312	+ 371	44	150,439	+ 8,223
„ Motor Buses	„ 29	599	874	+ 275	44	35,914	+ 9,666
„ Total	„ 29	3,540	4,186	+ 646	44	186,353	+ 17,889
Southend-on-Sea Corp.	Feb. 5	1,769	1,908	+ 139	43½	108,181	+ 644
Southport Corp.	„ 1	1,354	1,431	+ 77	43¾	74,896	+ 321
St. Helens Corp.	Jan. 28	1,798	2,107	+ 309	43¾	89,261	+ 6,060
Sunderland Corp.	Feb. 2	2,150	2,261	+ 111	44	107,566	+ 4,216
Swindon Corp.	Jan. 29	557	913	+ 356	43½	36,001	— 10,363
Wallasey Corp.	Feb. 1	1,171	1,143	— 28	43¾	57,528	— 35,420
„ Motor Buses	„ 1	1,446	1,813	+ 367	43½	91,828	+ 53,097
„ Total	„ 1	2,617	2,956	+ 339	43¾	149,356	+ 17,677
Walsall Corporation	Jan. 26	3,085	3,528	+ 443	43	149,257	+ 13,086
Walthamstow Corp.	Feb. 1	2,111	2,369	+ 258	44	107,510	+ 7,720
Warrington Corp.	Jan. 30	876	904	+ 28	44	39,440	— 944
„ Motor Buses	„ 30	435	474	+ 39	44	20,287	+ 3,326
„ Total	„ 30	1,311	1,378	+ 67	44	59,727	+ 2,382
West Ham. Corp.	„ 30	6,332	6,190	+ 858	43¾	267,059	+ 23,814
Wolverhampton Corp.	„ 26	Nil	Nil	Nil	43	Nil	— 15 958
„ Motor Buses	„ 26	2,537	2,662	+ 125	43	120,529	+ 17,070
„ Trolley Buses	„ 26	3,048	3,322	+ 274	43	145,274	+ 24,076
„ Total	„ 26	5,585	5,984	+ 399	43	265,803	+ 25,188
York Corporation	„ 29	911	930	+ 19	44	46,105	+ 266
„ Motor Buses	„ 29	339	488	+ 149	44	18,585	+ 4,400
„ Total	„ 29	1,250	1,418	+ 168	44	64,690	+ 4,666

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

Name.	Week or M'th.	Latest Return. 1928-29.	1929-30.	Aggregate. Wks. or *Ms.*	1929-30.	In. or Dec.
Anglo-Argentine	Feb. 6	£84,511	£84,446	5 w	£415,718	— £13,008
Brazilian Traction $	Dec.	3,673,543	3,984,311	12 *m*	49,351,215	+ 6,576,402
British Columbia $	Dec.	1,228,405	1,255,522	6 *m*	7 251,473	+ 400,835
Buenos Aires Lacroze	Feb. 2	12,986	12,528	31 w	357,506	— 21,533
Burma E. Sup. Co. Rs.	Dec.	62,582	63,485	5 *m*	313,337	— 24,223
Calcutta ... Rs.	Feb. 1	125,638	120,053	4½ w	574,978	— 70,527
Cape Town	Dec.	32,709	30,332	...	...	...
Carthagena & Herrerias	Jan.	732	1,351	1 *m*	1,351	+ 619
Durban	Dec.	26,123	25,452	5 *m*	120,976	+ 2,106
East India	Jan.	3,562	3,553	6 *m*	23,535	+ 725
Kalgoorlie	Oct.	1,738	1,703	10 *m*	17,174	— 291
La Plata	Dec.	10,300	10,327	12 *m*	116,149	+ 2,604
Madras (2 weeks) Rs.	Jan. 31	42,605	44,960	4 w	94,311	+ 2,916
Para	Dec.	14,360	14,487	1 *m*	14,487	+ 127
Port Elizabeth ...	Dec.	9,830	9,115	...	...	...
Rangoon ... Rs.	Jan.	116,835	155,080	1 *m*	155,080	+ 38,245
Shanghai ... $	Dec.	321,970	345,415	12 *m*	4,073,322	+ 370,577
Singapore ... ...$	Jan.	115,000	139,000	4 *m*	527,000	+ 81,000
Winnipeg ... ...$	Dec.	586,264	641,362	12 *m*	6,635,237	+ 448,374

RAILWAY RECEIPTS.

5th Week ended Feb. 2nd	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week.	Inc. or Dec. to Date.
G.W.R.	176,000	— 1,000	350,000	— 10,000	526,000	— 11,000	+ 15,000
L.M.S.R.	412,000	— 1,000	835,000	— 28,000	1,247,000	— 29,000	— 68,000
L.N.E.R.	282,000	— 4,000	728,000	+ 14,000	1,010,000	+ 10,000	+ 33,000
S.R.	252,000	+ 10,000	115,000	— 1,000	367,000	+ 9,000	+ 40,000
Totals	1,122,000	+ 4,000	1,928,000	— 25,000	3,150,000	— 21,000	+ 20,000

ELECTRIC RAILWAYS.

Name.	Week Ended.	Latest Return. 1929.	1930.	+ or —	Aggregate. 1930.	+ or —
London Underground Common Fund Cos.	Feb. 1	262,200	289,100	+ 26,900	1,384,000	+ 137,400
Lond. & Sub. Group	„ 1	37,300	42,500	+ 5,200	202,800	+ 28,500
Metropolitan Railway	„ 1	33,900	35,700	+ 1,800	183,600	+ 7,900
Liverpool Overhead	„ 2	1,533	1,543	+ 10	8,032	— 79
Mersey Railway	„ 1	4,465	4,627	+ 162	24,699	+ 828

Digitized by Google

THE Tramway & Railway World
WITH OMNIBUS & COACH SECTION
Founded 1892 LONDON, FEBRUARY 13, 1930 VOL. LXVII

ONE-MAN CARS OF THE PARIS PUBLIC TRANSPORT CO.

INGENIOUS ASSEMBLY OF AUTOMATIC SAFETY DEVICES.

Many readers will remember the paper which M. Bacqueyrisse, managing director of the Paris Public Transport Company, presented at the last congress of the International Union of Tramways, Light Railways and Public Automobile Transport on the operation of one-man cars by his company. M. Kereval, divisional inspector of the technical investigation and research department of the company, has now reconstructed fourteen cars of the same type and proposes to transform many other cars of another type for operation as one-man cars. M. Kereval, to whom we are indebted for the information and illustrations that accompany this article, says that, in order to assure the complete safety of the passengers, even in the case of the accidental failure of the motorman, the company has installed upon the one-man

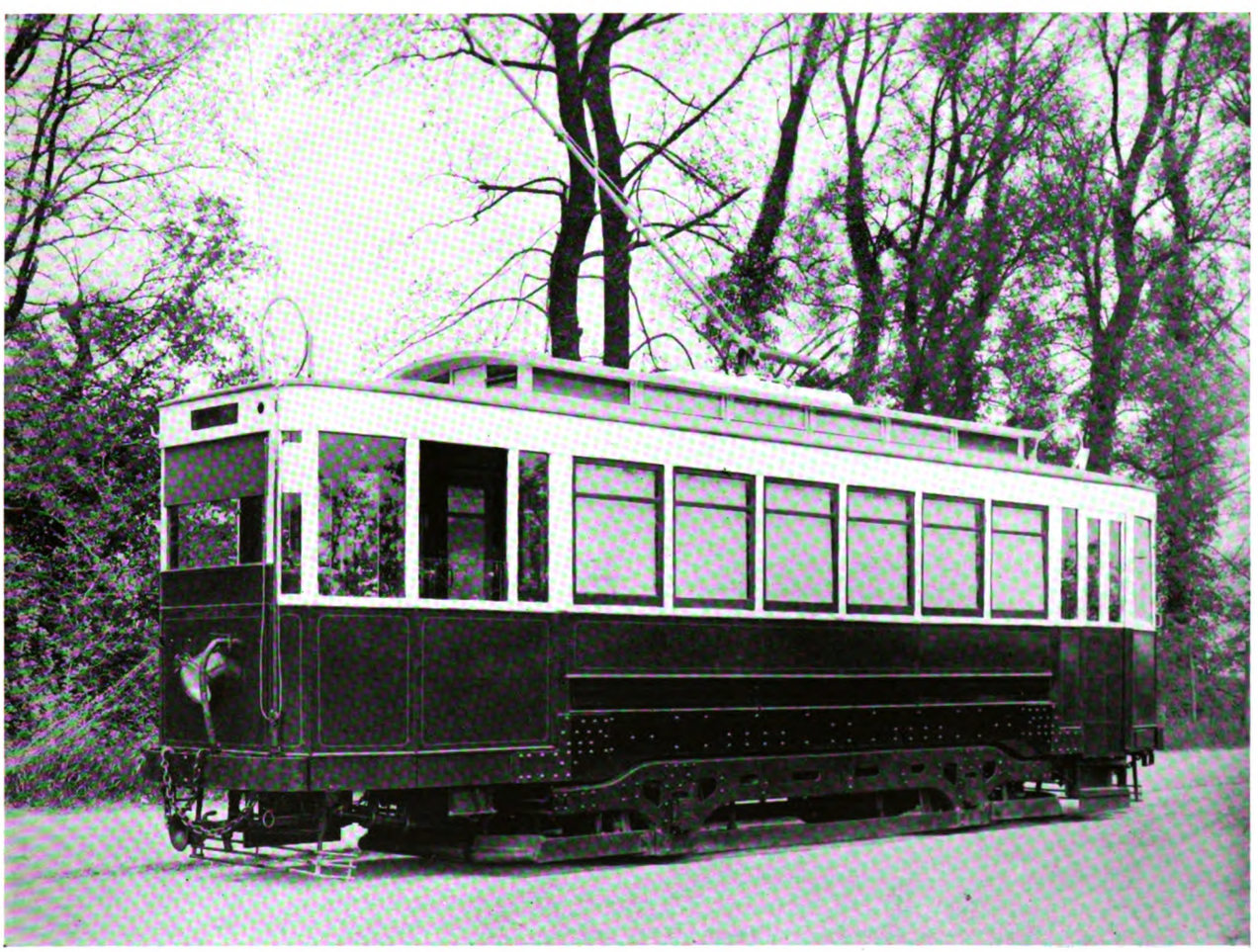
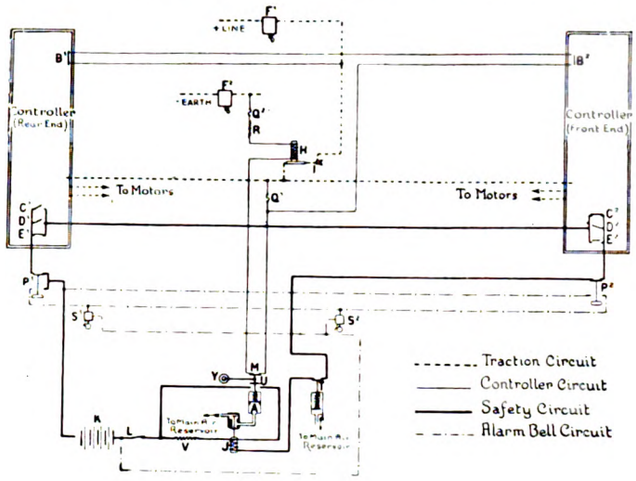


Fig. 1.—One-man operated Car of the Paris Transport Co.

has recently given a description of the arrangements that the Paris Company has adopted for transforming some two-men cars for one-man operation. This transformation, undertaken at first as an experiment upon a two-man motor car in 1927, led to results considered to be so satisfactory that the company cars a system of safety devices which has received the approval of the Technical Investigation and Research Department of the Seine. The safety system does not depend upon line voltage, but is operated by a battery of accumulators which provides current for what is known as the "safety circuit."

Digitized by Google

The whole arrangement is entirely automatic in action, and in the event of illness of the driver, operation of an alarm signal by a passenger, the reduction of air pressure below a certain point, or failure of current in the



A	Relay Cylinder.
B^1B^2	Contacts on Controller Reversing Switch.
C^1C^2	Contact Buttons in Dead Man's Handles.
D^1D^2	Pedal Operated Switches.
E^1E^2	Safety Circuit Contacts on Reversing Drums.
F^1F^2	Overload Releases.
H	No-volt Release Coil.
I	Contacts of No-volt Releases.
J	"Electro-Valve."
K	Battery Actuating Safety Circuit.
L	Main Switch of Safety Circuit.
M	Switch for Interrupting Traction Circuit.
P^1P^2	Alarm Signals.
Q^1Q^2	Fuses in Controller Circuit.
R	Controller Resistances.
S^1S^2	Alarm Bells.
T	Switch Operated by Reduced Air Pressure Valve.
U	Switch for Short Circuiting Resistance V.
V	Resistance to Minimise Current through Solenoid.
Y	Automatic Control Valve.

Fig. 2.—Diagram of Electric Circuits.

safety circuit, an alarm bell is set in motion, line current to the traction motors is interrupted, the rails are sanded, the pneumatic brakes are applied, and the doors of the car are unlocked.

The complete safety circuit is shown in Fig. 2, where P. 1 and P. 2 are circuit breakers which are operated by the alarm signals, and C. 1 and C. 2 are switches, connected in parallel, and operated by pressure upon the buttons in the "dead-man" handles. The main switch, L, is opened only when the car is out of use, in order to avoid discharge of the battery. Interruption of the safety circuit by operation of the alarm signals completes an auxiliary circuit in which are the alarm bells S. 1 and S. 2. Switches D. 1 and D. 2, operated by pedals fitted at

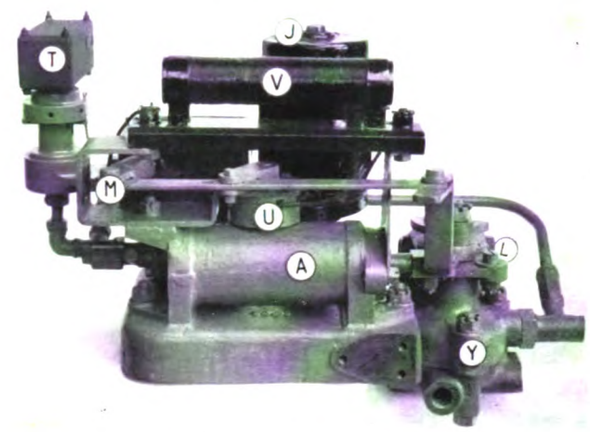
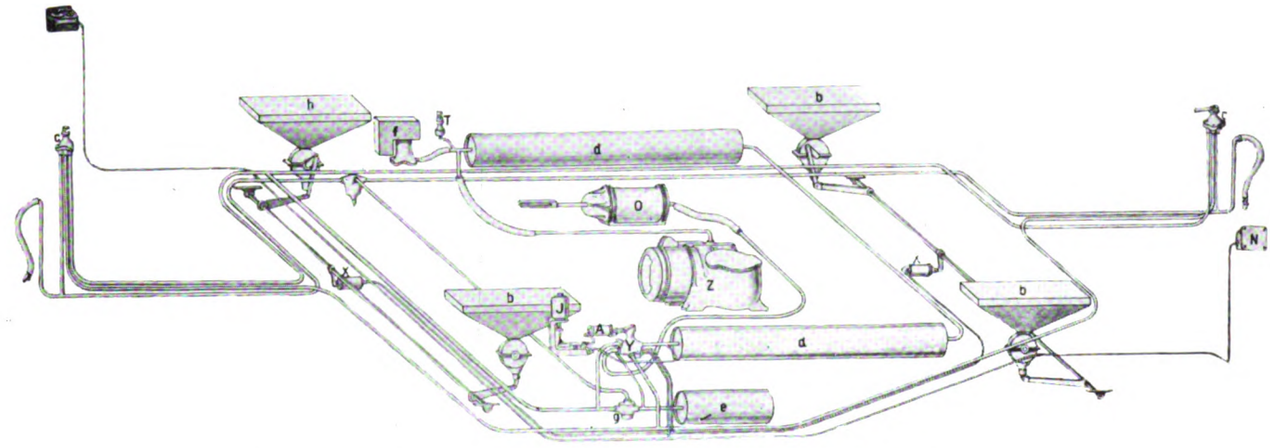


Fig. 4.—Automatic Safety Control Group.

the bases of the controllers, are normally open. That at the driving end of the car is closed by a light pressure of the driver's left foot, so that his right foot is always free to operate the gong. The pedals, which move in a horizontal direction, are placed under guards, so arranged that the pedal cannot be accidentally pressed should the driver become incapacitated. Switches E. 1 and E. 2 are attached to supplementary contacts placed on the reversing drums. They are closed when the reversing handle is in the neutral position and opened for all other positions of the



A	Relay Cylinder.	Z	Air Compressor.
J	"Electro-Valve."	b	Sanders.
N	Pneumatic Door Bolts.	c	Air-brake Controls.
O	Brake Cylinder.	d	Main Air Reservoirs.
T	Valve Operated by Reduced Air Pressure.	e	Auxiliary Air Reservoir
X	Air Cylinders Operating Sanders.	f	Air Pressure Regulating Valve.
Y	Automatic Control Valve.	g	Brake Distributor Valve.

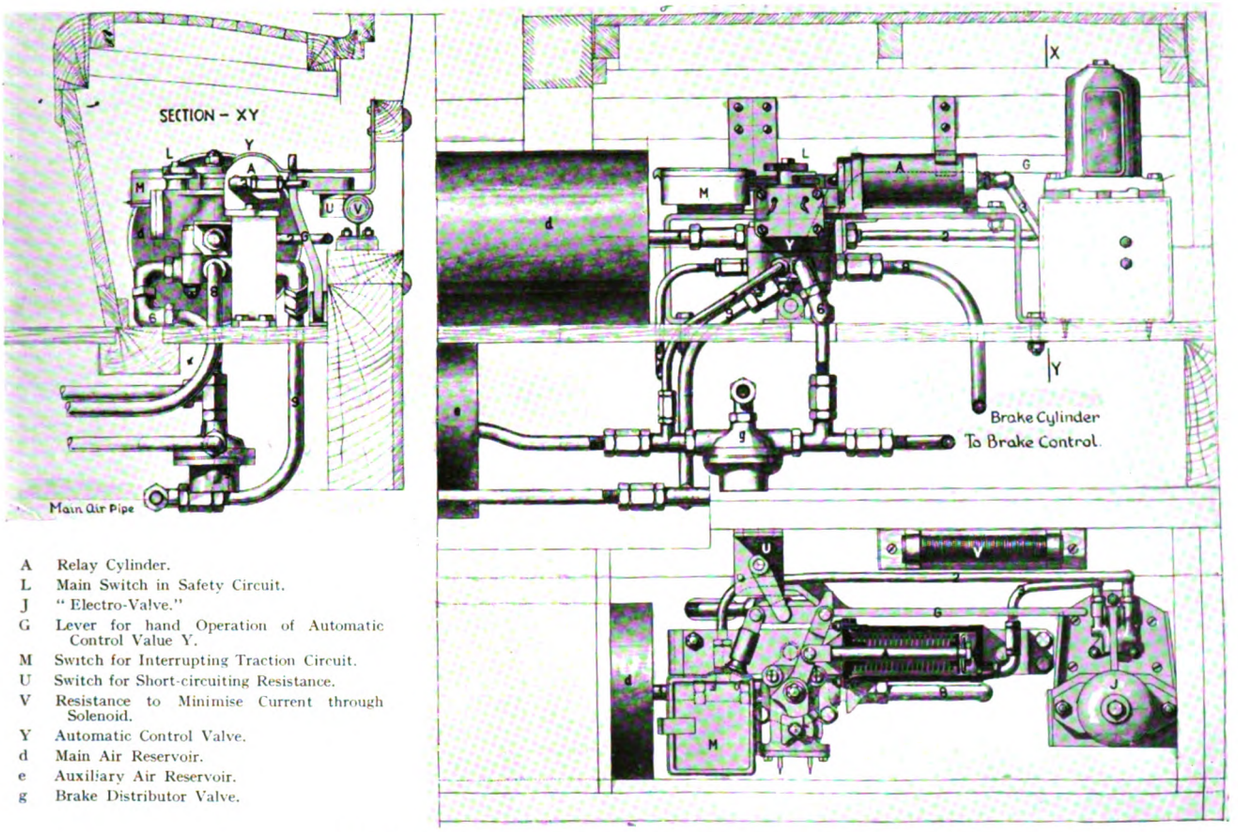
Fig. 3.—Pneumatic System.

handle. Thus the switch at the driving end is normally open during movement, while that at the other end is closed, since the handle can only be removed when in the neutral position. In the safety circuit there is an electro-magnetic solenoid, shown at J in Fig. 2, the armature of which controls the movements of an air valve, referred to as an electro-valve. This valve operates, through the medium of a relay cylinder, the main automatic air valve which, in turn, controls automatic application of the brakes and sanders, as well as the unbolting of the car doors

Digitized by Google

and interruption of the traction circuit by means of the switch M in Fig. 2.

The complete pneumatic arrangements are illustrated diagramatically in Figs. 3 and 5, where the



A Relay Cylinder.
L Main Switch in Safety Circuit.
J "Electro-Valve."
G Lever for hand Operation of Automatic Control Value Y.
M Switch for Interrupting Traction Circuit.
U Switch for Short-circuiting Resistance.
V Resistance to Minimise Current through Solenoid.
Y Automatic Control Valve.
d Main Air Reservoir.
e Auxiliary Air Reservoir.
g Brake Distributor Valve.

Fig. 5—General Arrangement of Safety Apparatus.

electro-valve is shown at J. The device actually contains two valves, one between the main air reservoir and the control cylinder A, and the other between

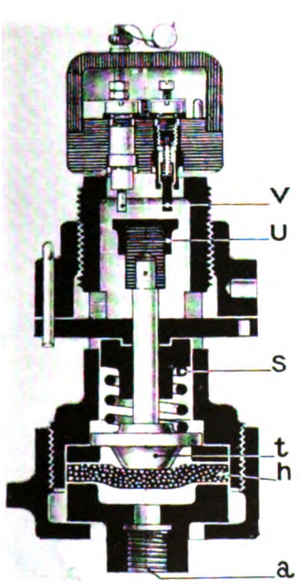


Fig. 6.—Switch operated by reduced air pressure

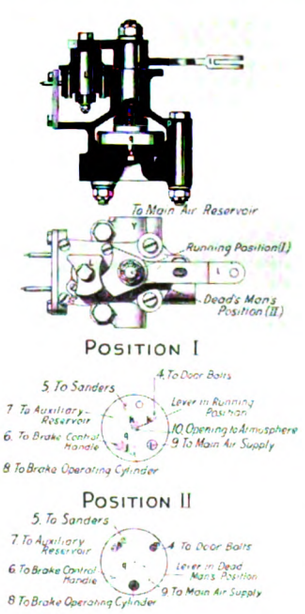

To Main Air Reservoir
Running Position (I.)
Dead Man's Position (II.)
POSITION I
4. To Door Bolts
5. To Sanders
Lever in Running Position
7. To Auxiliary Reservoir
10. Opening to Atmosphere
6. To Brake Control Handle
9. To Main Air Supply
8. To Brake Operating Cylinder
POSITION II
5. To Sanders
7. To Auxiliary Reservoir
4. To Door Bolts
6. To Brake Control Handle
Lever in Dead Man's Position
9. To Main Air Supply
8. To Brake Operating Cylinder

Fig. 7.—Automatic Control Valve

cylinder A and the atmosphere. When the solenoid is excited, the armature falls and closes the latter valve while lifting the former. The main air reservoir is thus connected with cylinder A, which, being energised, moves the main automatic valve into the "normal" position and closes the switch M which operates contactors in the traction circuit. Upon the opening of the safety circuit the electro-valve is returned, by spring control, to its original position and air supply is cut off from Cylinder A, which is also opened to the atmosphere. The movement of the main automatic valve which ensues brings into action the automatic braking and sanding devices. At the same time the switch M of the contactor opens and the traction current is cut off.

In order to minimise the current passing through the solenoid after the valve has been set, a resistance V is put in circuit by the opening of switch U (Figs. 2 and 5) when the electro-valve comes into the running position. Opening of the safety circuit closes the switch U and short circuits the resistance V. In the safety circuit there is a switch T (Fig. 2) which opens whenever the pressure in the main air receiver falls below 3.5 kilogrammes per square centimetre. This device, which is connected with the main air reservoir, consists of a diaphragm whose underside is exposed to the pressure of the air in the reservoir, while a spring presses on its upper surface. Details of its construction are illustrated in Fig. 6. A central rod t, mounted on the diaphragm h, carries at the top a cap u, which can make contact with the two terminals v of the switch (shown in diagram at T in Fig. 2). When the pressure in the main reservoir falls below the predetermined point, the spring s pulls down the rod t, the cap u leaves the terminals v and the safety circuit is broken. The automatic control valve then ruptures the traction circuit and operates the brakes and sanders.

The automatic control valve (Fig. 7) consists of

Digitized by Google

a frame Y into which are led the main air pipe (9), the auxiliary reservoir pipe (7), the brake cylinder pipe (8), brake control pipe (6), the sander pipe (5), and the door-bolt control pipe (4). A central opening (10) connects with the atmosphere. The cap (p) is fixed upon the frame of the device and is connected with the main air reservoir by the pipe ending in the orifice (i). The moving centre (q), forced against the frame of the valve by the air pressure of the main reservoir, is moved, through the medium of the lever L, by the piston of the control cylinder A (Figs. 3 and 5). In position 1 (the running position) q is so disposed as to connect the main reservoir with the main air pipe (9), through orifice i, and the normal brake control pipe 6 with the pipe which leads to the brake pipe 8 by means of the cross tube j. The cross tube k connects the sander pipe (5) and the bolt control pipe (4) with the atmosphere, through the central orifice (10). In position II (dead man position) the orifice i of q connects the main reservoir directly with the brake pipe (8). The pipes which connect the brake handle with the reservoir on the one side and the brake cylinder on the other are cut off, and braking is started directly by the action of the automatic valve, whatever may be the position of the brake handle. The orifice m similarly connects the main reservoir with pipe 4, controlling the door bolts. The cross tube n of q connects the auxiliary reservoir pipe (7) with the sander pipe (5). In the running position the valve makes the connections necessary for operation of the brake by the driver by connecting the main air reservoir with the main pipe and the control pipe with the brake cylinder pipe. In the alternative position, in which the safety circuit is open, the valve ensures direct communication between the main air reservoir and the brake cylinder and by-passes the driver's brake control. Braking is thus secured irrespective of the position of the driver's brake control and is effectively maintained since the brake cylinder is in direct communication with the main reservoir, which is constantly charged by the compressor. The auxiliary reservoir is connected to the cylinders controlling the sanders, and the unbolting of the doors by the main reservoir takes place at the same time. All of these pipes are emptied as soon as the automatic valve is returned to its normal running position 1 (Fig. 7).

The Societe de Construction et d'Entretien de Materiel Industriel et Agricole has evolved a group of apparatus, shown in Fig. 4, containing in small space all the safety devices above described, i.e., the electro-magnetic solenoid, electro-valve, control cylinder, automatic control valve, running resistance for the solenoid, main switch, and safety circuit switch. Owing to its small size, the group may readily be placed upon any type of tramcar and should certainly be of great value in the conversion of existing rolling stock for operation upon the one-man system.

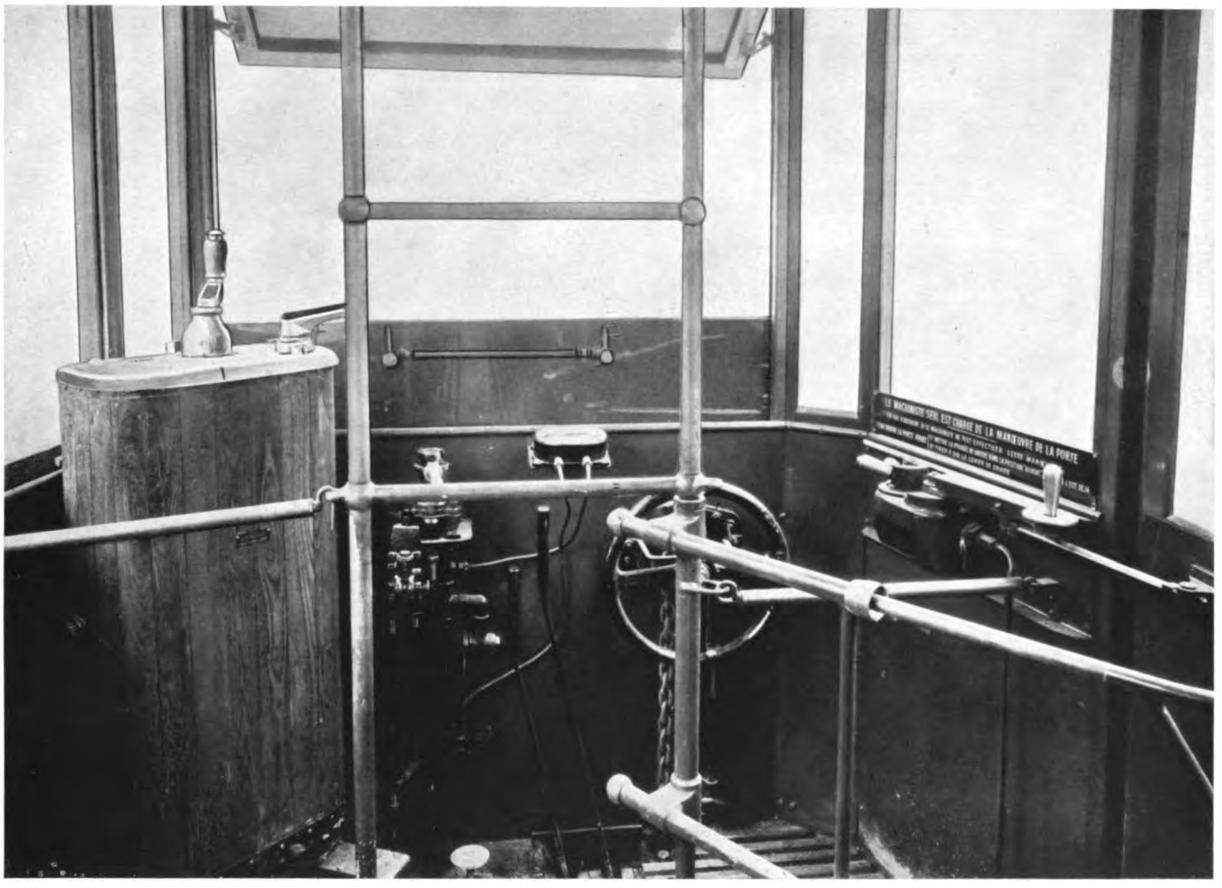


Fig. 8—Control Platform of One-man Car.

The sanding devices are controlled by cylinders which are in communication either with the atmosphere or else with the auxiliary reservoir through the automatic control valve. When, in position II (Fig. 7), the necessary connections have been made and the sand boxes opened, the rod placed at the centre of the piston opens the valve between the cylinder and the atmosphere by means of a suitable cam. As soon

Digitized by Google

as the reserve in the auxiliary reservoir (about 20 litres) is exhausted, the piston is thrown back by its spring and the sand boxes are closed, thus avoiding wastage of sand during a prolonged halt.

The equipment above described was primarily designed to minimise risk caused by illness of the driver. One-man operation, however, calls for certain other arrangements from the point of view of safety, especially such as to prevent passengers entering or leaving a car while in motion, or falling accidentally from an open or improperly fastened door. Entrances should be arranged for ease of control by the driver, a condition which clearly renders unsuitable cars with a centre platform. When trying out a one-man car, the company selected from the rolling stock in use a car with enclosed platforms at each end, and one in which there was space for installation of the safety apparatus. Fig. 1 shows the car after its conversion. It contains one central compartment with longitudinal seats. Each platform has a door, operated by the driver, opening inwards, so that passengers upon the platform cannot push it open accidentally. At the same time, the arrangement of the bolts prevents the opening of the doors unless certain conditions are fulfilled. Should the safety apparatus come into operation the doors are unbolted and can then be opened by the passengers. In normal use the driver opens the door on the front platform at each stop by turning with his hand the cam which is operated pneumatically by the safety apparatus. For this he uses the handle which may be seen in Fig. 8 on the left of the lever which opens the door.

The experimental car was in use for over a year with entirely satisfactory results. The working of the safety apparatus gave no trouble and the satisfactory results achieved in service, coupled with the economic advantages resulting from the elimination of the conductor, led the company to convert fourteen other cars of this type. Although these were only completed in the course of the year 1928, statistics already confirm that with these cars the number of accidents is lower than with cars of the ordinary type operated by two men. The routes on which these cars have been run have, in fact, shown a proportion of accidents 20 per cent. lower than on similar routes worked by two-man cars.

The introduction of one-man cars has been so successful economically, as well as from considerations of safety and regularity of service, that the company is considering the extension of the system to forty new cars for use on routes the general nature of which is particularly suited to operation by one-man cars.

SOUTHERN RAILWAY ELECTRIFICATION SCHEMES.

The directors of the Southern Railway have authorised an expenditure of £4,300,000 on various new works for 1930. In addition to the recently announced electrification of the lines to Reigate, Redhill, Brighton and Worthing, the following extensions of electrically operated railway have been authorised: Dartford to Gravesend, 14 miles, £159,500; Wimbledon to West Croydon, 8 miles, £72,000; Twickenham to Windsor, 27½ miles, £376,000. The extension of the "door-to-door" railhead distribution transport arrangements necessitates the construction of fifteen 5-ton motor lorries, fourteen 2-ton lorries, and six 20-cwt. parcels vans, at a cost of £21,610.

LONDON SUBWAY RECONSTRUCTION.

A Minimum Height of 16 ft. 6 in. to Admit Double-Deck Cars.

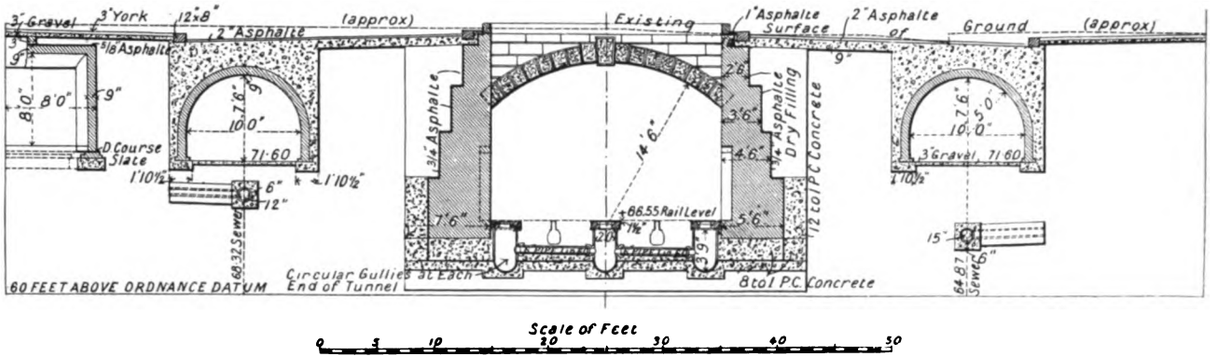
The Aldwych and Kingsway subway from the Victoria Embankment to Theobald's Road was closed to traffic on February 2, and will remain closed for more than a year. In the meantime the work of increasing the headroom of the tunnels so as to permit top-covered double-deck cars to take the places of the single-deck vehicles which have carried the traffic from the Elephant and Castle junction to Islington and Highgate since the opening of the subway in February, 1906, will be carried out. The existing headroom is insufficient by 3½ ft. to take a double-deck car, and the reconstruction will give a minimum height of 16 ft. 6 in., the roof being raised in some places and the track lowered elsewhere.

Entrance to Subway from Southampton Row.

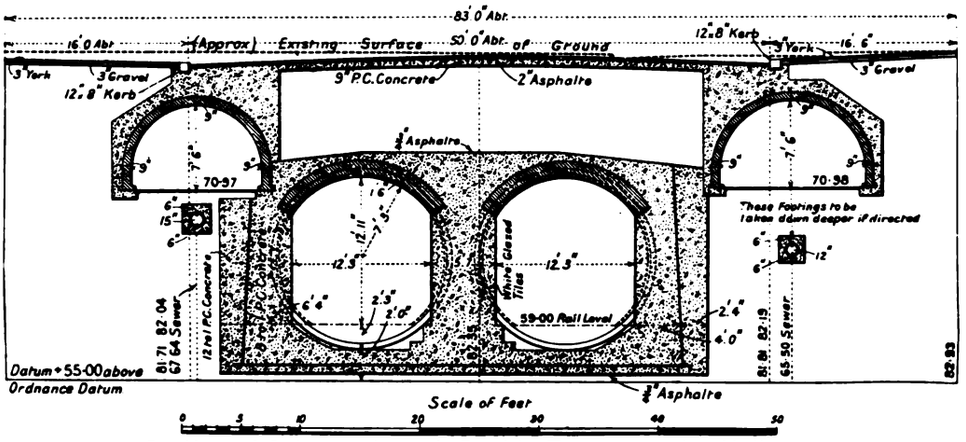
Although of late years 200,000 passengers have been carried every week-day, single-deck cars have not proved profitable; but it is estimated that the reconstruction of the subway and cars will yield a gross profit of £12,600 a year. In addition, direct communication will be given by double-deck cars between any districts north and south of the Thames, besides enabling rolling stock from the northern tramways to take a direct route to the repair works at Charlton in the south. At present the only means of access is via Hammersmith and Putney Bridge.

The estimated cost of the reconstruction is £326,000, including £76,000 for providing top decks and covers to fifty cars. In July last, John Cochrane & Sons, Ltd., were awarded the contract for the enlargement of the subway and for the reconstruction on the conduit system of the tramways therein. Their tender of £171,246 was the lowest; the highest was £273,166. The contractors started in August upon

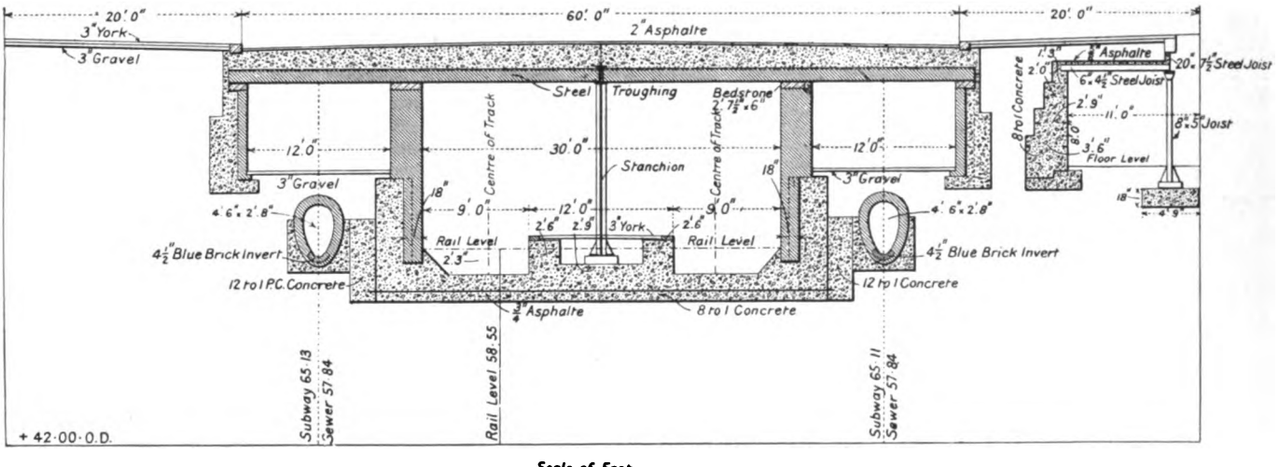
Digitized by Google



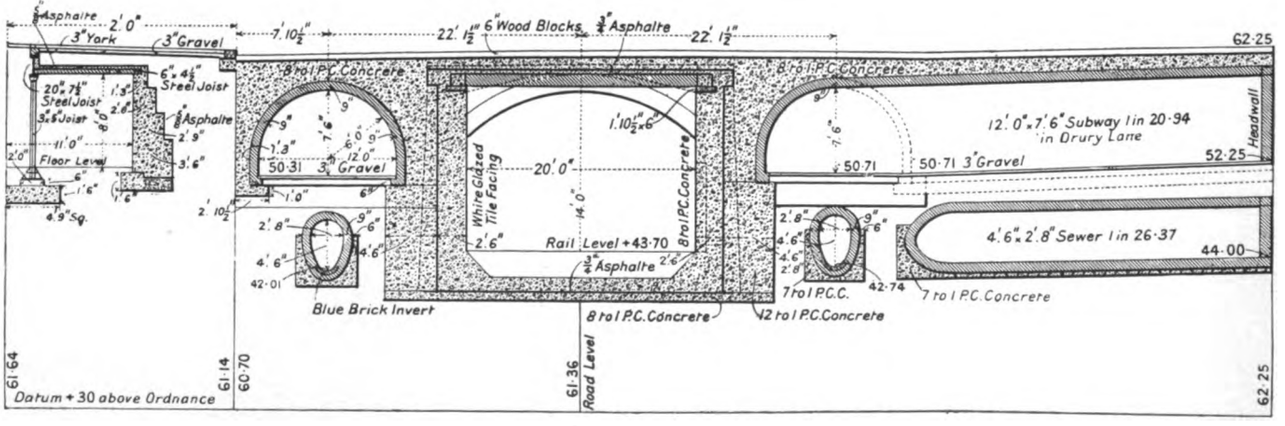
Section at Northern Entrance of Subway in Southampton Row.



Section of Subway through Double Tunnels under Holborn.



Section of Subway through Holborn Station.



Section of Subway at Junction of Aldwych and Drury Lane.

Digitized by Google

such work at the Theobald's Road end as did not interfere with the tramway traffic.

In its length of barely six furlongs the subway is remarkable for the different methods of construction employed. The work was done at the same time that the County Council formed the roadway of Aldwych and Kingsway on the demolition of a great area of slum property. A cutting of 170 ft. in length with a slope of 1 in 10 forms the entrance to the subway from Theobald's Road. This leads to a double tunnel under Southampton Row and High Holborn, the two tracks being laid in separate tunnels of cast-iron construction, the rail level being 31 ft. below the surface of High Holborn. On the south side of High Holborn the double tunnel is continued to the first station, which extends from north of Parker Street nearly to Great Queen Street. The station roof is built of steel trough girders, the same system of

View in one of the two Tunnels at the dip under Holborn.

roof construction being continued down to and including the station at the north entrance to Aldwych. Each station has an island platform with staircases at each end. Up cars stop on one side and down cars on the other side.

From the south side of Aldwych station brick arch construction is employed as far as the north side of the Strand. Here the subway descends to deep levels to come out on the Embankment at Waterloo Bridge, and cast-iron tubes are used again. The rail level is about 34 ft. below the surface of the Strand. South of the Strand for some little distance under Wellington Street, brick arch is again used, while the roof of the last section to the Embankment is of steel trough girders partially built into the foundation arches of Wellington Street. At the Embankment end the track is practically level for about 200 yards before it comes out to the public road on the west side of Waterloo Bridge. The total rise to the Theobald's Road entrance is roughly 67½ ft. Originally the junction on the Embankment enabled cars to proceed to Blackfriars Bridge as well as to Westminster, but a few years ago the special work for cars going east was lifted and all the traffic has since taken the Westminster route.

The varying levels at which the subway is built

Old Single-Deck Car at Aldwych Station.

show the difference in construction necessary when going along a new street specially constructed, in comparison with crossing existing thoroughfares. It was necessary to dip the rails to a depth of 31 ft. below the roadway in Holborn to avoid sewers and other obstructions. At the Strand crossing the rails had to be kept 34 ft. below the surface for similar reasons. Under Kingsway no obstructions had to be dealt with. The new sewers were built in duplicate

Tunnel under Kingsway, looking North from Aldwych Station.

one on each side of the street, while pipe subways on each side take all gas and water pipes, cables, etc. Thus it is never necessary to break up the surface of Kingsway for the purpose of laying or repairing pipes. Conduit traction is the system upon which the cars are operated, and the tracks are built up from the base of the tunnel, the foundation being of concrete.

Digitized by Google

The rails rest upon and are bolted to longitudinal wood sleepers, 12 in. wide by 6 in. deep, the sleepers being embedded and anchored in concrete up to the underside of the head of the rail. Above the concrete is 4 in. of ballast, which is finished off with cement. Supporting channels, embedded in the concrete, and further secured by bolts, are placed at intervals to carry the slot rail, which is of special design in lengths of 7 ft. 6 in., and can easily be lifted to enable the conduit to be inspected.

For a year or more before the subway was opened in February, 1906, the terminus at the southern end was a *cul de sac* at the Strand. It was not until 1908 that the last furlong of the subway was completed. The reason was that Parliament for many years refused to permit the South London tramways to be extended over Blackfriars and Westminster Bridges and along the Embankment. In 1902 the County Council obtained powers to construct the subway, which was modelled upon the shallow subways already in operation in New York and Boston. The former was reported as costing £350,000, and the latter £450,000 per mile of double track. Careful calculations resulted in an estimate of £282,000 per mile for similar lines in London, exclusive of the purchase of vaults, cellars, or any other vested interests, and without

Victoria Embankment at Tramway Junction with Subway.

making any provision for pipe galleries or for the cost of transferring pipes to them.

A startling fact, and one that must have added greatly to the cost, is that all the spoil from the construction of Kingsway and the subway was carried away in one-horse springless dobbin carts, through busy streets, to the shoot still in existence at Blackfriars Bridge, where it was barged for reclamation work at Tilbury. Only a minor quantity was removed by a traction engine drawing two trailers. Compare that slow removal with the work of the motor lorries which since the war have removed to miles outside of London the spoil of great buildings that have been razed for reconstruction.

In view of the fact that the subway is now being deepened to render it profitable by the operation of

Kingsway, looking North, showing entrance to Station.

double-deck cars, it is of interest to quote the following sentences from an editorial in THE TRAMWAY AND RAILWAY WORLD of June 9, 1904: "When the Council is given authority to construct tramways along the Embankment, then will be felt the full effect of the blunder which has been perpetrated in making the subway so shallow that double-deck cars cannot be run through it. An additional depth of three and a half feet would have given ample clearance to have enabled the Council to use its standard cars for through services. A large sum has, of course, been saved by keeping the subway as shallow as possible, but the additional capital required would have been small in proportion to the cost of constructing electric tramways throughout London, and it is probable that the larger expenditure would have proved the wiser economy."

While the subway is closed, Pullman double-deck cars operate between Highbury and the Bloomsbury end of the subway, the route having practically a 24-hour service, except on Saturdays. Transfer tickets at the midday fare of 2d. are issued for passengers alighting at Farringdon Road, Holborn, or Bloomsbury to complete the journey on an Embankment car to Westminster, the County Hall, and Christ Church.

The L.G.O.C. are running a frequent connecting service of omnibuses to Charing Cross, via the Strand and Northumberland Avenue, returning via the Embankment and Temple Station on the return journey, at 1d. fare each way.

Digitized by Google

SALESMANSHIP AMONG LONDON TRAMWAYMEN.

EFFECTIVE RESULTS FROM AN EFFICIENCY MOVEMENT.

During the past four years the management, traffic and other departments of the London County Council Tramways have actively encouraged a movement for stimulating a wider conception of duty among the employees. In other words, an effort has been made to impress them with the fact that the success of the tramways depends in no small measure upon the goodwill subsisting between the staff and the public. The recognition of that all-important circumstance has been rendered easier during three of the four years of the movement by the conversion of the cars into vehicles that give passengers the Pullman standard of comfort. One result of that transformation is that the car crews are greatly assisted in the task of selling rides at the same attractive price as of old.

As to the success of the educational campaign generally, net receipts of the tramways for the year ended March 31, 1929, came within £6,000 of the net expenditure, after allowing for payment of loan interest and principal. That fact should afford the publicity department of the tramways an opportunity for pointing out to the employees and to the public the interest that will attach to the financial position on

Employing Methods that bring Revenue and increase Goodwill.

March 31 next. Publication of the receipts in ladder-climbing form, week by week during the remaining weeks of the financial year, would constitute a splendid advertisement for the undertaking. Already the increase in the receipts has become spectacular. From April 1, 1929, to February 5, 1930, the increase totals £57,969 over the corresponding period of 1928.

All concerned in the scheme of higher training have doubtless been much encouraged by the appreciation which the Highways Committee has shown of the progress already achieved. In a report presented to the Council on May 7, 1929, the Committee said: "We feel that such a satisfactory state of affairs (referring to the improved financial position) can only have been

A Wide-Awake Motorman sees his Chance.

achieved by the whole-hearted co-operation of all grades, *i.e.*, both directive and operative in the Tramways department, and we have accordingly expressed to the staff our appreciation of their efforts in securing the improved financial position."

Thanks to a booklet issued by the Tramways department, containing a print of selected papers read at depot meetings during the 1928-29 session, other tramway undertakings may profit from the example of the L.C.C. tramways. Three papers have been published, and each enforces the lesson in a greater or lesser degree, that the main characteristics that go to create goodwill for a transport undertaking are regular running, speed, courtesy, comfort and facilities. A paper written by Conductor J. H. Paine secured the first prize and it deserves to be made a text book for the more complete training of the conductor and motor-man.

Examining from the point of view of the conductor and the motor-man the means that may be taken to secure, in the face of competition, the extra halfpenny per mile that was necessary in 1928-29 to place the undertaking on a firmer footing, the author refers to the importance of strict time-keeping and to keeping a look-out for intending passengers. He insists that the motorman is in the best position for observing those who are coming down side streets, while the conductor should not miss people who are hurrying from the rear. Passengers may be lost, he says, through bad driving—cars started and stopped with violent jerks cause discomfort.

Civility is shown to be an important method of influencing the travelling public, and the conductor is warned to be careful not to wrongly punch and cancel

Digitized by Google

return tickets. Errors of that description, the author observes, must have a marked effect on revenue, for a passenger who is questioned on the validity of his ticket possibly feels that he is regarded by other people as one who is trying to avoid payment of fare. An enquiry as to whether a single or return ticket is required acts as a timely reminder and often secures a passenger for the return journey. Other home truths for conductors are that a bare request to passengers to hurry will make them move more slowly if it is made to sound too much like an order; that "Sorry, can't take any more" is preferable to the abrupt "Full up here"; and that assistance rendered to women and children and to passengers with luggage is greatly appreciated. To his list of shortcomings the author might have added: "Pass along the car" and "Change into the car behind." The addition of "Please" makes a world of difference in the effect of the request upon the passengers.

Conductor Paine's paper gains additional value by the inclusion of four illustrations. Three of these

Salesmanship—"A Return Ticket is Cheaper, Sir."

The Conductor in the wrong place.

show live salesmanship in that the conductor and motorman are keeping a look-out for intending passengers. The other depicts a conductor in a wrong attitude on the entrance platform. These illustrations have been embodied in a placard for exhibition on depot notice boards.

The second paper outlines the admirable publicity work of the L.C.C. Tramways, and here again the outdoor staff are told that "the best publicity agents are the motorman, the conductor, the inspector and regulator, men in a position every minute of the day to advertise the tramways by word, deed and bearing."

The third excellent paper gives a few points on operation of tramcar controllers. Three points are referred to as needing always to be uppermost in the mind of the motorman, namely, safety first, schedule time and economical operation. Good judgment of speed and distance is quoted as being essential for economy in power consumption and minimum wear and tear on equipment. The author adds that on tramway systems where the magnetic brake is not used as a service brake it is considered possible to distinguish a good motorman from a bad one by his condition at the finish of his day's work.

A TRAFFIC REVOLUTION IN ROME.

With the opening of the year, writes a correspondent, wheel traffic in Rome underwent a revolution. In one night the Gordian knot of traffic was severed; and a new system seemed almost to spring out of the ground. The novelty consists substantially in this—that tramways have been removed from the whole inner city, which corresponds to the Rome of 1870, and have been replaced by omnibuses. Between the Colosseum and the Piazza del Popolo, the railway station and the Bridge of St. Angelo, tramway cars no longer circulate. Now we have instead the autobus, exhaust gases from which permeate the narrow thoroughfares. Of the electric tramways there remains only on the right bank of the Tiber a lonely bridgehead near the Palace of Justice. But round the inner city a ring line has been constructed, from the most important points of which radial tramlines communicate with the outer quarters of the city. In reality, however, the new system is much more complicated than would be suggested by this simple statement. There is the ring tramline, numerous radial lines, exterior tram ring lines, tramway periphery lines, inner autobus lines, autobus penetration lines, periphery autobus lines, and special lines and night lines. There are five different classes of tickets, which must all be punched three times. The difficulty to the layman must appear obvious; but for his guidance an official traffic guide book has been distributed, containing 100 pages and 15 tables.

The object of the change is to free the centre of the city of its tramway traffic, and to create in the old town, so rich with monuments, a zone of silence. The autobuses are, however, not less noisy than the electric trams.

On the other hand the reform has achieved its purpose: that of getting rid of the through traffic between the outer quarters. For this purpose the tariffs have been so adjusted that the ring lines are the cheapest. The tariff policy of the Rome tramway system will be by-and-bye a favourite theme for learned differentiation, as a question of national economy. But further, the traffic in the inner town has, as a consequence, declined, as the people are going more on foot, which, in fact, offers the simplest method of removing the traffic difficulty.

The omnibuses are unbearably overcrowded, and besides, the "compressed travellers" find the inside insufferably close, notwithstanding the winter cold. The result is that passengers crowd the platforms and footboards like swarms of bees. It has been calculated that for some time 40 per cent. of the passengers have travelled free, simply because the conductors cannot get through the crowd, or crush, packed in the cars.

We must not judge of the reform too rashly and condemn it utterly merely because of the serious difficulties caused by its hasty introduction. The tramways system had developed without a clearly defined plan through three decades, while the reform has been freshly planned, according to the ideas of a traffic manager who must steer the traffic in defined directions. Nevertheless the purpose is good and sound. The old centre of Rome, planned for a much smaller population, can no longer continue to carry the traffic. Congestion had already become very great and would certainly have increased with years. All is now ready for underground railways, including plans and official acceptance. There remains only the question of finance.

Digitized by Google

CO-OPERATION OF THE EMPLOYEES.

The following passages from the report of the Committee on the "Transportation Employees" to the American Electric Railway Association epitomise a point of view which, while receiving more attention than in the past, is still sometimes treated with less care than it merits. In the transport industry more than in many others the greatest success can be achieved only by the thorough co-operation of the employees. They are the connecting link between the public and the undertaking, and their skill and courtesy largely determine the view taken by passengers of the efficiency of the service. The American Committee say :—

We believe that the employee is never through with his training, and that the company has never discharged its obligation to the employee in the matter of training so long as he operates a car or coach for it. Information must be given continually to the employee in as attractive a way as possible, not only to keep him interested in his job, but to keep him abreast of the times in a developing and improving industry.

The employee is becoming more and more to be recognised as a partner in the enterprise, not simply through the possession of a financial interest but because the aims and objects of managements are coincident with those of the men who wear their uniforms and operate their cars.

We believe that an intimate knowledge of the economic factors and managerial problems that determine the policies of a company is a vital factor in enlisting the co-operation of the employee. It is universally accepted that the company must teach him the mechanics of his job in the preliminary breaking-in period, inform him about the equipment, teach him how to use and not to ill-use the tools that he works with.

If men can be induced to acquire a more intelligent understanding of their job, they will be better able to handle the mechanics of the job, to control the human or personal side and to have a great interest, if not pleasure, in the performance of their work.

If this result can be achieved, the returns for management are large ; for the companies can anticipate better team work, lower labour turnover, fewer accidents and an improved company prestige.

AMERICAN TRAMWAY INDUSTRY.

Extensive Use of One-Man Cars.

The information service of the American Electric Railway Association gathers and summarises very useful and extensive statistics from month to month from about 200 electric tramways. From these statistics certain broad facts are elicited which are included in a monthly report. Dealing with reports covering October last from 180 companies, Mr. E. J. Murphy, director of the information service of the Association, says that, due probably to unfavourable industrial conditions, the electric railway traffic continued to decline during the month. The average fare shows a slight increase.

A survey of one-man car operation shows extensive use of these vehicles in the United States and Canada. There was a decrease of 2.49 per cent. in the number of revenue passengers, including omnibus passengers, carried during October, 1929, as compared with October, 1928. This was a larger decrease than in any previous month of 1929, and it is thought to indicate a definite turn downward in the trend of traffic. A summary of the one-man car situation shows that 427 of the estimated total of 700 electric railways (tramways) in the United States and Canada now have in service 22,741 one-man cars. Of these one-man cars 19,942 are in city service, 1,280 in inter-urban services connecting two or more towns, and 1,419 are unclassified as to the type of service.

Reports from the majority of the companies included in the survey indicate that one-man cars equipped with safety devices may be operated with much greater safety than two-man cars (these are apparently without safety devices). In all but five cities of over 100,000 population in the United States one-man cars are in service. The most recent example is Desmoines, Missouri, where, after a long struggle between the company and the union to settle the one-man car question, an agreement was reached on October 18.

TRAMWAYS AND LIGHT RAILWAYS ASSOCIATION.

A meeting of the members of the Tramways and Light Railways Association will be held at Caxton Hall, Westminster, S.W., on Tuesday, February 18, at 2.30 p.m., to consider a resolution that the name of the Association be changed to the Tramways, Light Railways and Transport Association. In recommending the alteration, the Council say that certain companies have, or are about to convert their tramways into trolley omnibus systems, and that several are becoming statutory omnibus undertakings. The change of title has also been rendered advisable owing to a noticeable increase in the manufacturing and supply sections of the membership. A desire that the change should be made was generally expressed by members at the congress held in Sheffield last June.

Annual Congress.

At a meeting of the Council of the Tramways and Light Railways Association held in January an invitation of the Corporation of Hastings to hold the annual congress in that town during the month of June was accepted. The date of the congress has been fixed for Thursday and Friday, June 12 and 13. The Association headquarters will be the Queen's Hotel, Hastings. Further particulars will be issued later.

AN EGYPTIAN STATE RAILWAY CONTRACT.

The Egyptian State Railway has placed with the Metropolitan-Vickers Electrical Co. a contract for the complete equipment of a 5,000 kw. generating station, to be constructed at Gabbary, to supply power for the railway workshops and also for public distribution in the district, including Alexandria. The turbo-alternator sets will be one of 2,500 kw. and two of 1,250 kw. capacity, generating at 6,600 volts, the turbines operating with steam at 240 lb. per sq. in. gauge pressure super-heated 250 deg. F. These sets are to be of the self-contained type, developed by the Metropolitan-Vickers Co., in which the turbine and condenser of each set are built as a combined unit and all auxiliaries are driven from the set itself. The sets are remarkably compact and, requiring no basement or elaborate foundations, they make possible important savings in power-house construction. Running costs and attendance charges are also low, due to high operative efficiency and simplicity of control. More than 80 sets of this type have been supplied to power houses at home and abroad.

Air and Rail Goods Service.—Imperial Airways, Ltd., and the railway companies have concluded arrangements for comprehensive rail and air goods services. Goods will shortly be sent from more than 100 provincial towns by train to London and thence by air freighters to the Continent at through rates. Goods will be booked through by air and rail from manufacturers in this country direct to consumers on the Continent.

Digitized by Google

THE
Tramway and Railway World
FOUNDED IN 1892.
Offices:
AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C. 2
Telephone: TEMPLE BAR 2948
Telegrams: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD *can be obtained at the following rate:—*
FOR THE UNITED KINGDOM—Twenty-five Shillings per annum.
FOR ALL PLACES ABROAD—Twenty-five Shillings per annum. Postage to Canada 6s.; to other places abroad, 9s. 6d.
Single Copies—One Shilling (Postage, 2 pence—abroad, 5 pence).
All back numbers—Two Shillings.
THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS.

The Editor will consider contributions offered for publication in THE TRAMWAY AND RAILWAY WORLD (including the Omnibus and Coach Section) by those conversant with the subjects that come within the scope of this journal. All information of a practical character relating particularly to the engineering and operating branches of transportation will receive prompt attention. Original illustrations will also be welcome.

LONDON, FEBRUARY 13, 1930.

Municipal Omnibus Powers.

In the House of Commons on February 7, the Omnibuses Bill, promoted by the Municipal Tramways and Transport Association and supported by the Association of Municipal Corporations, was read a second time by a majority of 203 votes against 118. This marks the beginning of a new orientation. Some three years ago this Bill was defeated in the House of Commons by a majority of five votes. Since then it has been unsuccessful in the ballot for private members' Bills, so that it has not been brought forward again until now. But in the meantime a Labour Government succeeded a Conservative Government, and the former are pushing through Parliament a comprehensive Road Traffic Bill. Part 5 of that Bill provided for local authorities who already have statutory powers to work omnibuses to be enabled to extend those services both inside and outside the municipal area without having to get a special Parliamentary Bill passed at the cost of much labour, time and expense. The Ministry of Transport would confirm such extensions, provided that the new area licensing commissioners set up under the Road Traffic Bill granted the necessary licences. The idea was and is to put municipalities on the same footing as companies in the matter. The House of Lords in December last, when only 35 members were present, rejected part 5 of the Bill by a majority of 13, although every municipality in the country supports the proposal. So now do a great majority of members of the House of Commons. The Omnibuses Bill is substantially the same as part 5 of the Road Transport Bill. What was foreshadowed by Mr. Morrison, the Minister of Transport, in the debate on the Omnibuses Bill, is that the Government will either insist on the restoration of part 5 of the Road Traffic Bill, or that the Bill along with the Road Traffic Bill should be considered by the same Committee for the purposes of amalgamation. At any rate the municipal authorities may be satisfied so far. The fundamental question is really that between the supporters and the opponents of extension of municipal trading. That kind of trading has now gone so far that its existence has to be admitted. And then alarmists about extensions of municipal omnibus services should remember two things. One is that the area licensing commissioners set up by the Road Transport Bill will have a careful and impartial eye on all proposals. The other—a point which the municipalities do not seem to realise—is that the great railway companies are going to dominate inter-urban omnibus services. They are making rapid progress already, though it is not long since they obtained road transport powers. Agreements are already in existence between them and many omnibus companies and with a few municipalities. To all local authorities concerned the obvious advice is "Agree with thine adversary while he is in the way with thee."

A Corner Turned.

An examination of the weekly returns of traffic receipts of municipal tramway undertakings indicates that the period of depression is, for the present at all events, over. In some cases there is no separation in the returns of tramway receipts and omnibus receipts; but where the distinction is made it is found that the receipts from both branches of the business, as compared with those of corresponding periods last year, are increasing. In many cases the omnibus increases are larger than the tramway increases; this is for the obvious reason that in most instances the tramway route mileage remains stationary or is somewhat reduced, while the

Digitized by Google

omnibus route mileage increases. But the tramway is holding its own. The reasons why the doleful predictions of two or three years ago have been falsified are tolerably plain. They may be summarised in the statement that the tramway authorities have at last become alive to the situation caused by the competition of omnibuses. A tramcar of the kind to which the public has for so long been accustomed, with its wooden seats, gave rather less vibration to the passenger than an omnibus did, always provided that the tramway track was in good condition. But then, two or three years ago, it dawned on tramway operators that they could provide for passengers a comfort approaching that obtained in heavy railway rolling stock. This they are bringing about by spring-upholstered seats and improved lighting. Along with this we are given higher car speeds owing to the use of more powerful motors. Under the Government's Road Traffic Bill now before Parliament omnibuses are to be allowed to travel at 30 miles an hour. The Ministry of Transport restrictions on tramcar speeds may, therefore, be regarded as gone, especially seeing that the tramcar with its lifeguards, inapplicable to automobiles, is the safest vehicle on the road from the point of view of the public. Speed, power breaking, comfortable seats for the passengers—these are among the tramway desiderata. Two or three instances may be cited of cases where these requirements are being met. A prominent case is that of the London County Council tramways. The Council are prohibited from running omnibuses, so that a good comparison can be made. Their weekly returns of traffic receipts are going up by leaps and bounds, though the omnibus competition is as fierce as ever. Ilford, also a tramway authority which runs no omnibuses, continues to show increased revenue, despite omnibus competition. It is the only tramway undertaking in the metropolitan area which regularly shows a profit. From Glasgow it is reported that passengers who had deserted the tramcar for the omnibus are coming back to the former vehicle, owing to the increasing appeal which it is now making. So it is proving elsewhere. In all the great centres of population no omnibus services will be able to detract from tramways equipped on modern lines. The omnibus has its own sphere.

Road Traffic Act for Northern Ireland.

The Northern Ireland Road Traffic Act, which was passed by the Senate on December 17, has now become law, and a summary of its provisions is given elsewhere in this issue. Apart from a somewhat contentious amendment to the Motor Vehicles Regulation Act of 1926, empowering juries trying cases where motorists are charged with manslaughter, or causing bodily harm, with discretion to find them guilty on an alternative charge of dangerous or reckless driving, the new Act is, in the main, likely to lead to improvement in the regulation of public vehicle services. Unlike the Road Traffic Bill which is now before the Imperial Parliament, no attempt has been made to interfere with the speed limit laid down by the Act of 1926, and the creation of new offences has been avoided. Neither has any provision been made for compulsory insurance against third party risks—a form of protection to which the public is undoubtedly entitled. Amendment of the minimum age for driving a public service vehicle so as to permit the issue of a licence to a person of nineteen years of age seems a questionable step, and it is difficult to justify it on the score of limiting the young person's activities to the conduct of vehicles carrying a maximum of six passengers. The provisions as to the licensing and regulation of public service vehicles are the most valuable parts of the Act and they should go far to ameliorate the notoriously chaotic conditions which have hitherto obtained in Northern Ireland. Although the Minister of Home Affairs reserves the right to impose conditions as to routes, arrangement of services and time tables, it appears probable that these matters will be in the hands of the Roads Committee appointed under Section 22 of the Ministry of Transport Act, 1919, acting in an advisory capacity. If this proves to be the case, the constitution of this committee becomes of very great importance not only from the points of view of local transport authorities and responsible private operators but also from those of the police and the public. Efficient regulation of public transport facilities can only be carried out by a strictly impartial body hearing and considering representations from all who are directly interested in, or affected by, a proposed service. This being the case it is of paramount importance

Digitized by Google

that the members of an advisory body should be totally disinterested in the services which they are called upon to consider. It is, therefore, of interest to observe that, in increasing the maximum number of members of the Roads Committee from seven to nine, the Act provides that it shall include a representative of railway proprietors in Northern Ireland who is to be appointed " after consultation with the interests concerned." The Governor of Northern Ireland is to appoint three persons to form a tribunal whose jurisdiction is limited to the fixing of fares to be charged for passengers and rates for luggage and parcels. The powers of this tribunal are wide and from its decisions, which are final, there is to be no appeal to any court excepting upon points of law. The regulation of fares extends to the Belfast Corporation Tramways and thus creates a divided authority which may be inimical to the best interests of that undertaking, which under the Aberdeen clause must balance its budget each year. It is difficult to see how this can be done if the fixing of fares is in the hands of another and independent body. Although the regulating of routes, services and time tables are excluded from the jurisdiction of this tribunal, the expenses and remuneration (if any) of its members are to be paid out of the Northern Ireland Road Fund.

PART V OF THE ROAD TRAFFIC BILL.

MUNICIPAL ASSOCIATIONS ASK FOR ITS REINTRODUCTION.

A joint meeting of the Association of Municipal Corporations and the Municipal Tramways and Transport Association was held at Caxton Hall, Westminster, on January 23, to consider the Road Traffic Bill and the restoration of Part V when the Bill comes before the House of Commons, probably on February 18.

Alderman C. W. Beardsley, Lord Mayor of Sheffield, presided, and the large attendance included representatives from practically all local authorities concerned in road transport.

It was unanimously resolved that " representation should be made to the Minister of Transport urging the Government to reintroduce the provisions of Part V of the Bill in the House of Commons so as to give the House of Lords an opportunity of reconsidering their decision." The proceedings were private, but a report of the remarks of Alderman Thomas Canby, J.P., the president of the Municipal Tramways and Transport Association, was issued for publication. The report of Alderman Canby's vigorous speech was published in our issue of January 25.

L.U.T. EXPERIMENT WITH TROLLEY OMNIBUSES.—An announcement by the London United Tramways Co. states that, while under the terms of their Parliamentary Bill they are seeking powers to abandon any part of their system for the purpose of operating trolley omnibuses, they do not intend, in the event of the Bill being passed, to do more in the first instance than carry out experiments on certain parts of their system. It may be necessary to experiment in several areas before a satisfactory conclusion can be reached, and it is for this reason that they are seeking the powers over the whole system. The first experiment will probably be in the Kingston area.

SOME RECENT PUBLICATIONS.

Present-day Transport Problems. By K. G. Fenelon, M.A., Ph.D. (London: P. S. King & Son, Ltd. 6s.).

Dr. Fenelon, in collating the information and data contained in the 137 pages of this work, has made a valuable contribution towards the solution of the problems set up by wastage in transport facilities to-day. While serious discussion has of late been directed to the possibilities of co-ordination, the extraordinary progress made by motor transport since the war has been responsible for much loose talk upon the subject. Any investigation of the nature, advantages, and limitations of co-ordination is of necessity valuable, but analysis of those features by an authority on economics increases that value beyond measure. Dr. Fenelon has aimed to view the transport problem as a whole and, although attention has been concentrated on the relationship of road and rail services, other forms of locomotion, i.e., air transport, inland waterways, and the coasting trade have not been neglected.

Successful co-ordination implies that each form of transport should be employed in the particular circumstances for which it is best suited, and the author reviews, in very concise form, the economic characteristics of each type of transport and their respective economic spheres. In the comparatively static period in transport evolution prior to 1914 each form of transport fell naturally into its own sphere, and a species of unconscious co-ordination resulted. But co-ordination presents a very different and far more difficult problem when, as now, conditions are dynamic.

> " In transitional periods, competition is keen and the exact economic sphere of each form of transport is changing. The older concerns may be faced with the loss of their capital and unemployment may threaten their workers if the new methods result in supersession of the old. Thus the coach proprietors of the second quarter of the nineteenth century viewed the coming of the new methods as the ' calamity of the railways.' In the same period, the canal companies became demoralised by the advent of competition and, instead of putting their house in order, were content to suffer an almost complete eclipse after 1850. The more astute had previously sold their undertakings at fancy prices to the new railway companies as the price of acquiescence in the promotion of Railway Bills in Parliament."

Realising that history has a habit of repeating itself, and with full cognisance of the difficulties involved in any attempt to determine the *exact* economic spheres of the newer types of transport, a variety of ways in which co-ordination might be achieved are examined, e.g. voluntary or statutory co-ordination.

There are chapters dealing with road and rail co-ordination abroad and with co-ordination of passenger transport facilities in great cities. The whole work is carefully indexed, and its value is considerably augmented by the inclusion of twenty-eight statistical tables.

The Re-organisation of Crewe Locomotive Works, L.M.S.R. London: *The Railway Engineer*, 33, Tothill Street, S.W.1. Cloth. Price 15s. net.

The " Belt " system of construction, hitherto particularly associated with the automobile industry, has been applied, with marked success, to the erection of locomotives by the L.M.S. Railway; and the complete reorganisation, based upon this plan, of their Crewe Locomotive Works, affords some striking examples of economy in production by " up-to-date " methods. Only the closest investigation into every process and every detail throughout the works rendered possible the introduction of the scheme; and the successful manner in which it has been accomplished is fully described in the volume just published. Particular interest attaches to the detailed explanation of the progress system under which the work is moved to the men instead of the men being moved to the work, and the volume under review should prove a source of information and assistance to administrations contemplating reorganisation of their workshops—whether upon a small or large scale.

The work is profusely illustrated, and the lay-outs of the various shops are clearly shown by folding plates.

VEHICULAR TUNNEL FOR NEW YORK.—Plans for a six-road vehicular tunnel from West Street (at the lower end of Manhattan Island) to Hamilton Avenue, Brooklyn, via Governor's Island, has been made public by Mr. Albert Goldman, Commissioner of Plans and Contractors, City of New York. The estimated cost of the tunnel is £11,660,000. The tunnel would enable lorries to come from Brooklyn to Lower Manhattan Island without crossing the bridges. It will be 4.6 miles long, or 1.1 mile longer than the Holland vehicular tunnel between New York City and New Jersey.

Digitized by Google

NORTHERN IRELAND ROAD TRAFFIC ACT.

Provisions as to Licences and Fares.

The Motor Vehicles and Road Traffic Act (Northern Ireland). 1929, which has now passed into law, amends in certain particulars the provisions of the Motor Vehicles (Traffic and Regulation) Act (Northern Ireland), 1926, and makes further provision for the punishment of certain offences in connection with the driving of motor cars. In the main, however, it provides for the establishment of a tribunal to fix fares and rates for certain public service vehicles and empowers the Minister for Home Affairs to regulate general traffic on public highways.

Endorsements of Licences for Speed Offences.

Section 1 of the Act provides that where a person is convicted of a speed offence under the Act of 1926, convictions for similar offences which have taken place more than twelve months previously shall not be taken into account for the purpose of determining the penalties, or in connection with the suspension of the convicted person's licence. Provision is also made in regard to the right of a person to obtain a new licence free from endorsement for speed offences in cases where no conviction for speed offences has been made for a continuous period of twelve months.

Provisions as to Indictable Offences.

A drastic change has been introduced by Section 2 of the Act under which, upon trial of an indictment for manslaughter or for causing bodily harm to a person in connection with the driving of a motor car, juries may acquit a defendant of manslaughter or causing bodily harm and find him guilty of dangerous or reckless driving with liability to a fine, or a fine and imprisonment up to six months and suspension of, or disqualification for obtaining, a licence to drive. The scope of that part of Section 2 of the Act of 1926 which deals with drunkenness is widened to include liability for " attempting to drive " while under the influence of drink or drugs.

Age Limit for Driving Certain Public Vehicles.

Under Section 5, the provisions as to the minimum age for holding a licence to drive public service vehicles are amended so as to permit the issue to a person of nineteen years of age of a licence to drive a public service vehicle with a seating capacity for not more than six passengers.

Conditions as to Licences for Public Vehicles.

Section 11 of the Act of 1926 is amended to empower the Minister for Home Affairs to attach conditions to licences for public service vehicles as to :—

(*a*) the routes upon which the vehicles may be used ;

(*b*) the arrangement of the services on which the vehicle is run ;

(*c*) time tables to be observed in the running of the vehicle and as to fares in force on November 7, 1929, which are to remain in force although subject to alteration by the Fares Tribunal to be set up under the Act.

The purposes for which the Roads Committee for Northern Ireland is appointed under Section 22 of the Ministry of Transport Act, 1919 (as that act applies to Northern Ireland), shall be taken to include the giving of advice and assistance to the Minister with respect to, and for safeguarding any, interests affected by exercise of the powers of the Ministry for Home Affairs as to imposing conditions for the granting of licences for public service vehicles. The maximum number of members of the Roads Committee is increased from seven to nine, with the provision that it shall include a representative " of railway proprietors in Northern Ireland appointed after consultation with the interests concerned."

Fares Tribunal.

Section 7 of the Act provides for the establishment of a tribunal consisting of three persons, appointed by the Governor of Northern Ireland, having jurisdiction to fix fares and luggage rates with regard to public service vehicles in respect of which conditions are imposed by the Minister of Home Affairs. When imposing conditions as to routes, arrangements of services or time tables to be observed in the running of public service vehicles, the Minister shall refer to the Fares Tribunal the question of the fares to be charged for the vehicles to which the conditions apply.

It shall be the duty of the Tribunal to fix fares :—

(*a*) in any case which is reported to them by the Minister of Home Affairs or in which a representation is made to them by the Minister to the effect that any fares in force ought to be considered or revised ;

(*b*) in any case where a local authority or an aggrieved person applies to the Tribunal for reconsideration or revision of any fares in force.

Decisions of the Tribunal are to be final and not subject to appeal to any court ; provided that the Ministry, if it has made a representation ; or a local authority or aggrieved person, if they have made application to the Tribunal, may appeal upon any point of law to the Supreme Court.

It is provided that the Tribunal may hold sittings in some convenient place to hear and inquire into applications and matters within their jurisdiction and may, if it appears to them that an application is unreasonable and vexatious, order that the whole or part of the expenses incurred in connection therewith be paid by the applicant and may require applicants to give security for costs or expenses.

In relation to witnesses and their examination and production and inspection of documents, the Tribunal is to have powers similar to those conferred upon Inspectors of the Ministry of Home Affairs by the Poor Relief Acts (Northern Ireland), 1838 to 1928.

The chairman of the Tribunal shall be such one of the members thereof as the Governor of Northern Ireland may appoint.

The Tribunal may act notwithstanding any vacancy in their number, and two members shall be a quorum.

All questions brought before or arising at meetings of the Tribunal shall be decided by the majority of the members present and voting, provided that in the case of an equality of votes the chairman of the Tribunal shall have a second or casting vote.

The remuneration (if any) and expenses of the Tribunal or any member thereof, and the costs and expenses of any sittings held, to such an amount as may be approved by the Ministry of Finance, shall be paid out of the Road Fund (Northern Ireland) in the same manner as expense incurred by the Ministry of Home Affairs in the administration of the Act of 1926 and payable out of the said Fund.

Power is taken to proceed against local authorities or persons against whom an order for payment of costs or expenses has been made.

Power to Make General Traffic Regulations.

The Minister of Home Affairs is empowered by Section 8 to make regulations with respect to the use of vehicles of any kind whatsoever on public highways and for the control of traffic, both vehicular and pedestrian, thereon, including control by means of mechanically-worked signals.

If an address is presented to the Governor of Northern Ireland by either House of Parliament within the statutory period after any regulation made under Section 8 is laid before such House praying that such regulation may be annulled, the Governor may, by order in Council, but without prejudice to the validity of anything previously done thereunder, annul the regulation.

The " statutory period " may not in any case be shorter in duration than ten days, and must comprise five days at least on which the House in question has sat.

[Copies of the Motor Vehicles and Road Traffic Act (Northern Ireland), 1929, may be obtained from H.M. Stationery Office, 15, Donegall Square, West Belfast, price 3½d., postage included].

NORTHERN IRELAND FARES TRIBUNAL.

In accordance with the powers granted by the Motor Vehicles and Road Traffic Act (1929), Northern Ireland, the following have been appointed as the Tribunal to fix fares and rates for public service vehicles :—

Sir Lynden Macassey, K.B.E., K.C.,
Mr. David Lionel Clare, O.B.E., and
Mr. Adrian Robinson, B.L.

The first meeting was held in Hollywood Town Hall on February 11 to hear and to decide on an application made by the Belfast and County Down Railway Company to increase the fares chargeable in connection with the Company's omnibuses that ply between Belfast and Hollywood.

CARS AND OMNIBUSES FOR BELFAST.

At a meeting of the Belfast Town Council on February 3, objection was made to sending out of the city work which some persons maintain could be done there. Councillor McClure, chairman of the Tramways Committee, referred to the question of additional tramcars and omnibuses, and assured the deputation from the National Union of Electrical Builders and the Belfast Trades Council that the committee desired that as much of the work as possible should be carried out in Belfast. The general manager of the tramways had informed the committee that with the means at his disposal he could not undertake any such work at present.

The committee had discussed the question of placing the work with local firms when tenders were invited, and the manager stated that the tenders should be split up, in order to give local firms a chance of tendering, and that he would communicate with them specially on the subject. The Council authorised the manager to advertise for tenders for six double-deck omnibuses and six additional tramcars.

Digitized by Google

TRAMWAYS IN GREAT BRITAIN.

Annual Returns for 1928-29.

The annual return of tramways and light railways for the year ended December 31, 1928, for Companies and March, 1929, for Local Authorities has been issued by H.M. Stationery Office (price 10s. 6d.). Parts I, II and III deal with financial accounts, and Part IV with statistical information relating to tramways and light railways on public roads. In each part the undertakings of Local Authorities and Companies are grouped in separate portions, and the totals from the several parts are given in a summary table showing the figures for all undertakings in Great Britain. The second summary table, reproduced on a following page, shows the financial results for 1913-14 and for the past four years, both for the undertakings of Local Authorities and Companies. A list of orders made under the Statutory Undertakings (Temporary Increase of Charges) Act, 1918, and the Tramways (Temporary Increase of Charges) Act, 1920, are given in Part IX, while the list of Acts and orders governing the various undertakings is also given.

During the year with which the report deals there were 221 tramway undertakings (161 belonging to local authorities and 60 as Companies) in Great Britain, compared with 233 during the previous year.

Financial Accounts.

The total paid up capital of local authorities in Great Britain is £85,283,665, of which £47,284,648 has been redeemed or set aside for redemption, leaving a net capital liability of £37,999,017. The paid up capital of tramway companies is £20,908,646, of which £1,274,357 has been redeemed or set aside for redemption, leaving a net capital liability of £19,634,289.

Capital Expenditure.

	1928-29	1927-28	Inc. or Dec.
	£	£	£
Local Authorities ..	81,573,886	80,312,134	+ 1,261,752
Companies	18,924,849	19,601,626	— 676,777
Total Expenditure ..	100,498,735	99,913,760	+ 584,975

The total earnings are set out below :—

Local Authorities.	Mar. 31, 1929	Mar. 31, 1928	Inc. or Dec.
	£	£	£
Gross Earnings ..	23,292,621	23,860,767	— 568,146
Working Expenses ..	18,332,185	18,663,222	— 331,037
Net Receipts	4,960,436	5,197,545	— 237,109

Companies	Dec. 31, 1928	Dec. 31, 1927	Inc. or Dec.
	£	£	£
Gross Earnings	3,774,593	3,890,737	— 116,144
Working Expenses ..	3,147,550	3,279,925	— 132,375
Net Receipts	627,043	610,812	+ 16,231

Corporations and Companies	1928-29	1927-28	Inc. or Dec.
	£	£	£
Gross Receipts	27,067,214	27,751,504	— 684,290
Working Expenses ..	21,479,735	21,943,147	— 463,412
Net Receipts	5,587,479	5,808,537	— 220,878

The **ratio of** working expenses to gross receipts was 78.70, an increase of .48 over the previous year, for Local Authorities; and 83.39 for Companies, a decrease of .91. The combined figures give a ratio of 79.36, an increase of .29.

Tramway undertakings operated by Local Authorities received in the year from the local rates £298,872, compared with £552,754 in the previous year, and contributed £289,118 in relief of rates, compared with £420,011 in the previous year.

The total net income from tramways, after certain adjustments, including rents of leased lines, was £6,553, 129, as against £6,916,388 the previous year. With the sums brought forward from the previous year and, in the case of Local Authorities, the sums transferred from other businesses, the total net income available for distribution was £6,658,153, compared with £6,973,975 in the previous year. Of this sum £1,888,669 was appropriated for interest charges and dividends (compared with £1,954,682), £2,200,440 for repayment of debt (compared with £2,240,411), and £1,510,313 for reserve and renewal funds (compared with £1,724,237). In the case of Companies having other businesses, £225,321 was available from tramways for purposes of appropriation over various heads, compared with £217,802 in the previous year.

Statistical Returns.

The route miles authorised at the end of the period under review were 2,657, of which 2,420 miles were open for traffic, 1,812 miles being worked by Local Authorities and 608 miles by Companies. The track mileage operated amounted to 4,190 miles and the mileage of sidings and depot track to 150. Running powers were exercised over 436 miles of route (Local Authorities 359 miles and Companies 77 miles).

The route mileage of each gauge by each mode of traction in Great Britain at the end of the period covered by the Return is shown below :—

Mode of Traction.	Width of Gauge.					Total.
	3 ft. 6 in.	4ft. 0in.	4 ft. 7½ in.	4 ft. 8½ in.	5 ft. 10 in.	1928-29
Electric	495.99	151.03	241.55	1,514.77	0.14	2,403.48
Steam	—	—	—	8.55	—	8.55
Cable	1.11	6.56	—	—	—	7.67
Total, 1928-29 ..	497.10	151.59	241.55	1,523.32	0.14	2,419.70
Total, 1927-28 ..	529.03	186.46	253.43	1,538.62	0.14	2,507.68

The number of passenger journeys during the year was 4,623,258,679, a decrease of 82,584,253, or 1.75 per cent. as compared with the preceding year. Car-miles run amounted to 396,295,085, a decrease of 259,460, or 0.07 per cent. Of the total car-miles 394,967,738 or 99.67 per cent. were electric car-miles.

Car hours worked totalled 47,765,258, a decrease of 722,730, or 1.49 per cent. The number of car-miles run per car-hour was 8.30 in 1928-29 compared with 8.22 in 1927-28.

The quantity of electrical energy used was 817,492,187 B.T. units, and the number of units used per car-mile averaged 2.07. The figures for the preceding year were 794,175,338 and 2.01 B.T. units respectively.

The average fare paid per passenger journey in 1928-29 was 1.38d. In 1927-28 the figure was 1.39d.

Trolley Omnibus Undertakings.

At the end of the period under review 21 trolley omnibus undertakings of Local Authorities and two of Companies were open for traffic. Twenty-one other Local Authorities and one Company have powers for their undertakings which were not open for traffic during the period. Leeds Corporation ceased operating trolley omnibuses on July 26, 1928.

Three undertakings commenced to operate, namely, Doncaster Corporation (August 22, 1928); Maidstone Corporation (May 1, 1928), and Hastings and District Electric Tramways Co., Ltd. (April 1, 1928).

The following summary gives the capital expenditure, financial results of working and the principal statistics :—

	1928-29		
	Local Authorities	Companies	Total Great Britain
	£	£	£
Capital Expenditure ..	1,171,203	208,182	1,379,385
Gross Receipts	575,953	40,997	616,950
Working Expenses ..	423,820	37,375	461,195
Net Receipts	152,133	3,622	155,755
Interest and Dividends..	38,417	4,713	43,130
Redemption of Debt ..	71,096	—	71,096
Ratio of Operating Expenses to Receipts ..	73.59	91.17	74.75
Route miles open for traffic	111.68	20.95	132.63
Passengers carried ..	91,970,895	7,094,649	99,065,544
Car-miles run	9,482,299	974,080	10,456,379
Car-miles run per car-hour	8.50	9.30	8.57
B.T. units consumed ..	14,525,004	1,476,899	16,001,903
B.T. units per car-mile	1.53	1.52	1.53

Reduced Fares at Sheffield.—Speaking of the reduction in fares to be made by the Sheffield Corporation Tramways Department on June 1, Mr. A. R. Fearnley, the general manager of the Department, said that it was hoped that the reduction would induce more people living in the outside districts to come to the centre of the city. Although the reductions would entail a reduction in the tramways income of about £48,000 the Tramways Department had no doubt of being able to make both ends meet with the assistance of the Electricity and Highways Committee. The Electricity Committee has recently agreed, it will be remembered, to reduce the price for energy to such an extent that there will be an estimated saving to the Tramways Department of £13,000. Mr. Fearnley added that it would not be possible to make any further reductions in the fares. The 1d. stages would remain as at present, the 3d. return workmen's tickets would become unnecessary, as the ordinary fare would be the same price.

Digitized by Google

Summary Table of Financial Information of Tramways in Great Britain.

	LOCAL AUTHORITIES.					COMPANIES.					TOTAL—GREAT BRITAIN				
	1913–14 £	1925–26 £	1926–27. £	1927–28 £	1928–29 £	1913 £	1925 £	1926 £	1927 £	1928 £	1913–14 £	1925–26 £	1926–27 £	1927–28. £	1928–29. £
Capital Account:—															
Capital Authorized		91,187,916	93,123,721	96,024,578	97,952,465		27,361,321	27,409,603	27,439,240	27,667,153		118,549,237	120,533,324	123,463,818	125,619,618
Do. Paid up		77,008,688	80,093,312	82,836,987	85,283,665		21,112,363	21,079,385	21,087,691	20,908,646		98,121,051	101,172,697	103,924,678	106,192,311
Do. Redeemed or provided for		39,859,049	42,166,317	44,666,908	47,284,648		1,021,303	1,112,289	1,296,215	1,274,357		40,880,352	43,278,606	45,963,123	48,559,005
Net Capital Liability		37,149,639	37,926,995	38,170,079	37,999,017		20,091,060	19,967,096	19,791,476	19,634,289		57,240,69[illegible]	57,894,091	57,961,555	57,633,306
Capital Expenditure:—															
On Tramways:—															
Open for Traffic (including Rolling Stock)		65,960,019	67,657,520	68,838,391	70,052,793		10,993,351	10,827,169	10,825,024	10,269,131		76,953,370	78,484,689	79,663,415	80,321,924
Superseded and Displaced Works		7,680,454	7,929,067	8,195,896	8,420,773		1,209,311	1,222,566	1,227,712	1,234,618		8,889,765	9,151,633	9,423,608	9,655,391
Other Expenditure		3,121,526	3,204,008	3,277,847	3,100,320		7,695,425	7,770,175	7,548,890	7,421,100		10,816,951	10,974,183	10,826,737	10,521,420
Total—Tramways		76,761,999	78,790,595	80,312,134	81,573,886		19,898,087	19,819,910	19,601,626	18,924,849		96,660,086	98,610,505	99,913,760	100,498,735
On other businesses		2,213,082	2,985,650	4,006,017	5,420,964		—	—	—	—		2,213,082	2,985,650	4,006,017	5,420,964
Total	54,298,188	78,975,081	81,776,245	84,318,151	86,994,850	22,371,533	19,898,087	19,819,910	19,601,626	18,924,849	76,669,721	98,873,168	101,596,155	103,919,777	105,919,699
Tramways:—															
Revenue Account:—															
Income:—															
Traffic—Passengers	11,029,745	23,652,282	22,817,674	23,595,367	23,079,324	3,409,537	4,127,981	3,644,330	3,666,994	3,497,737	14,439,282	27,780,263	26,462,004	27,262,361	26,577,061
Do. Parcels, Mails, &c	41,926	88,446	82,670	94,538	97,325	25,568	32,728	32,933	33,836	28,100	67,494	121,174	115,603	128,374	125,425
Do. Through Running		*27,999*	*51,315*	*47,934*	*99,243*		*6,969*	12,951	20,215	52,506		*33,968*	*38,364*	*27,719*	*46,737*
Miscellaneous	325,039	205,893	211,347	218,796	215,215	328,661	137,993	165,945	169,692	196,250	653,700	343,886	377,292	388,488	411,465
Total	11,396,710	23,918,622	23,060,376	23,860,767	23,292,621	3,763,766	4,292,733	3,856,159	3,890,737	3,774,593	15,160,476	28,211,355	26,916,535	27,751,504	27,067,214
Expenditure:—															
Maintenance	1,623,310	4,598,612	4,336,254	4,365,181	4,270,166	588,382	957,875	860,106	862,022	845,969	2,211,692	5,556,487	5,196,360	5,227,203	5,116,135
Traffic Expenses	3,293,246	9,405,325	9,099,511	9,326,011	9,261,196	778,115	1,604,948	1,472,793	1,478,870	1,415,819	4,071,361	11,010,273	10,572,304	10,804,881	10,677,015
Power	1,454,405	2,497,281	2,880,227	2,481,042	2,367,007	623,361	571,735	578,743	510,342	462,176	2,077,766	3,069,016	3,458,970	2,991,384	2,829,183
General Expenses	548,261	1,490,572	1,470,205	1,482,380	1,485,742	254,466	336,648	311,281	308,134	297,096	802,727	1,827,220	1,781,486	1,790,514	1,782,838
Rates and Taxes (excluding Income Tax Schedule D)	517,662	1,023,612	1,021,574	1,025,429	1,001,765	98,355	121,485	107,743	100,930	92,843	616,017	1,145,097	1,129,317	1,126,359	1,094,608
Through Running Expenses		*6,280*	*14,650*	*16,821*	*53,691*		*3,196*	4,674	19,627	33,647		*9,476*	*9,976*	2,606	*20,044*
Total	7,436,884	19,009,122	18,793,121	18,663,222	18,332,185	2,342,679	3,589,495	3,335,340	3,279,925	3,147,550	9,779,563	22,598,617	22,128,461	21,943,147	21,479,735
Net Income:—															
Balance from Revenue Account	3,959,826	4,909,500	4,267,255	5,197,545	4,960,436	1,421,087	703,238	520,819	610,812	627,043	5,380,913	5,612,738	4,788,074	5,808,357	5,587,479
Rent of Leased Lines		239,042	224,483	218,724	218,477		13,571	13,104	13,628	13,668		252,613	237,587	232,352	232,545
Aid from Rates	62,600	418,933	655,242	552,754	298,872	—	—	—	—		62,600	418,933	655,242	552,754	298,872
Transfers from Reserve Funds		13,543	56,883	6,909	76,562		7,908	8,049	6,849	3,154		21,451	64,932	13,758	79,716
Other Income		309,806	332,757	285,480	319,442		253,621	277,158	256,039	267,620		563,427	604,915	541,519	587,062
Tramways Net Income	4,022,426	5,890,824	5,536,620	6,261,412	5,874,189	1,421,087	978,338	814,130	887,328	911,485	5,443,513	6,869,162	6,350,750	7,148,740	6,785,674
Transfers from other Businesses		174,896	*205,112	329,519	294,866		—	—	—	—		174,896	205,112	329,519	294,866
Balance brought forward		133,2 2	*46,427*	*231,689*	*114,834*		109,138	46,879	*40,243*	*75,008*		242,410	452	*271,932*	*189,842*
Total	4,022,426	6,198,992	5,695,305	6,359,242	6,054,221	1,421,087	1,087,476	861,009	847,085	836,477	5,443,513	7,286,468	6,556,314	7,206,327	6,890,698
Appropriation:—															
Interest and Dividends	1,169,855	1,729,853	1,746,655	1,668,428	1,644,817	781,202	309,355	311,622	286,254	243,852	1,951,057	2,039,208	2,058,277	1,954,682	1,888,669
Provision for Repayment of Debt	1,339,910	1,778,912	1,899,115	2,196,002	2,153,849	22,633	21,591	18,166	44,409	46,591	1,362,543	1,800,503	1,917,281	2,240,411	2,200,440
Rent of Leased Lines	118,636	98,680	84,994	84,262	85,875	316,011	170,881	174,495	165,940	162,781	434,647	269,561	259,489	250,202	248,656
Income Tax, Sched. D (net)	244,722	367,260	355,465	251,561	312,573	82,378	23,085	23,230	22,758	31,068	327,100	390,345	378,695	274,319	343,641
Reserve Depreciation and Renewal Funds	694,217	1,612,895	1,277,290	1,568,616	1,397,298	278,206	178,626	135,935	155,621	113,015	972,423	1,791,521	1,413,225	1,724,237	1,510,313
Relief of Rates	578,019	342,049	334,080	420,011	289,118	—	—	—	—	—	578,019	342,049	334,080	420,011	289,118
Transfers to Other Businesses		58,037	76,337	89,284	198,644	—	—	—	—	—		58,037	76,337	89,284	198,644
Other Purposes		212,285	175,969	196,326	188,158		18,969	55,810	28,754	70,172		231,254	231,779	225,080	258,330
Joint Undertaking—Amount available for Interest and Dividends, Debt Redemption, Reserves and Income Tax							328,517	182,021	217,802	225,321		328,517	182,021	217,802	225,321
Total	4,145,359	6,199,971	5,949,905	6,474,490	6,270,332	1,480,430	1,051,024	901,279	921,538	892,800	5,625,789	7,250,995	6,851,184	7,396,028	7,163,132
Balance carried forward to next year		*979*	*254,600*	*115,248*	*216,111*		36,452	*40,270*	*74,453*	*56,323*		35,473	*294,870*	*189,701*	*272,434*
Reserve, Renewal and Depreciation Funds:—															
Expenditure during the year on Renewals charged to Funds		863,159	867,307	949,884	786,485		149,757	108,404	160,726	118,195		1,012,916	975,711	1,110,610	904,680
Cr. Balance of Funds at end of year		5,166,942	5,107,051	5,595,699	5,798,370										

Digitized by Google

NEWCASTLE TRANSPORT UNDERTAKING.

COMMITTEE'S FIRM RECOMMENDATION CONCERNING POLICY.

The Newcastle Corporation Transport and Electricity Committee on January 30 issued a report to the City Council with regard to their policy in relation to the undertaking, together with comparative statements on the financial position of the tramways and omnibuses. In an introduction to the report, Alderman R. Mayne, J.P., chairman of the Committee, says that the aim of the Committee in the further development of the undertaking is to adopt and provide the most convenient forms of road transport, having due regard to the financial position of the undertaking. The Committee have no thought of recommending to the Council the general abolition of the tramways. On the other hand, they do not propose to recommend any extension of the existing tramway track. They propose, with the consent of the Council, to adopt other forms of transport when and where desirable to meet the growing needs of the city. It will be a part of the policy of the Committee, in every case where the tramway becomes worn out and must be renewed, to give careful consideration to the question whether the route can be more efficiently served by a form of transport other than tramcars, due weight being given to two prime factors, namely, the convenience of and the cost to the travelling public.

The Committee are of opinion that this policy is preferable to an immediate abolition of the tramways and the substitution of other forms of transport. The Committee are convinced that on most routes tramcars are still the best and most economical form of transport. Their abandonment at the present time, moreover, would involve the ratepayers in a grave financial responsibility.

As new residential districts are opened out, largely by the Housing Committee's enterprise, it is proposed that omnibuses should be provided on which residents are carried at fares similar to tramcar fares, but where the route traverses or competes with a tramway, passengers must pay ½d. above the tramcar fare. This is the policy which the Committee have already adopted, and which they propose to continue.

POST-WAR HANDICAP OF INCREASED COSTS AND COMPETITION.

Reviewing the operations of the undertaking since it was established in 1900, Mr. T. P. Easton, the general manager, states that up to the termination of the war it had been possible to meet all charges, and from the surplus available the following payments had been made: To the relief of rates, £95,164; horse tramway loan charges, £17,812; transfers to reserve and renewals fund, £306,809; allowances to men on active service, £50,279.

Entering into the post-war period with a reserve and renewals fund of £155,251, there appeared to be reasonable prospects of the undertaking maintaining its satisfactory position, but many adverse circumstances developed. Increased wages were the chief factor responsible for an enormous rise in the cost of working. The wages bill increased from £164,691 in 1917–18 to £338,038 in 1920–21, an increase of 105 per cent. Newcastle was the only undertaking which maintained pre-war fares throughout the war. Until 1921 traffic receipts continued to rise, but the working expenses advanced at a much greater ratio. Adverse circumstances operating against the undertaking included the large amount of arrears of maintenance and repair work to permanent way, tramcars, and power plant, delayed by the war. Costs all round increased, and in three years £197,000 was withdrawn from the reserve and renewals fund. The pre-war cost of permanent way renewals averaged £10,000 per mile of double track, but post-war renewals have averaged £22,000. For three years it was only possible to make the usual contribution of £14,000 to the relief of the rates by withdrawings from the reserve and renewals fund.

EXTENSIONS TO PROVIDE WORK—TRANSPORT REVOLUTION.

Other circumstances militating against the prosperity of the undertaking, Mr. Easton says, were long-continued trade depression, the cessation of the services owing to trade disputes causing an estimated loss in receipts of £52,000, and loss of receipts due to omnibus competition.

At the request of the Government, anxious to provide work for the unemployed after the war, extensions of the tramways were pressed forward. Since 1921 the addition to capital expenditure for these extensions amounts to £405,972, which requires £23,447 to meet annual interest and redemption charges. Had it been possible at that time to anticipate the wonderful development of other forms of transport, this sum probably would have been £8,000.

"Whilst it is true," Mr. Easton says, "that the carrying out of some of these extensions has proved unfortunate, it can be justly claimed that it was impossible at that time to foresee the rapid progress and development of the petrol omnibus which was to bring about such a revolution in road transportation." The most important extension was the laying of tramways across the High Level Bridge. Since this extension was opened on January 12, 1923, the yearly average number of passengers carried across the bridge has been 14,090,855. The opening of the Tyne Bridge brought about a considerable decrease of passengers due to omnibus services from the South then coming right into the city. A conservative estimate of the loss in receipts brought about by omnibus competition is £25,000 per annum.

In a reference to the omnibus undertaking, the general manager says it is at a great disadvantage before it can begin to operate a service, even to protect its own interest. The routine to secure powers is costly and slow, and involves the premature disclosure of the department's plans to competitors.

BRIGHTER TRAMWAY OUTLOOK AND CHEAPER ELECTRICITY.

With the passing of the Road Traffic Bill and the elimination of uneconomic traffic, much brighter prospects can be visualised, and the services over which much money has been spent have great potential value. By "uneconomic traffic" Mr. Easton means "fare cutting and piracy" of small operators.

It is regrettable that the results of the omnibus side of the undertaking will reveal a deficiency at the end of the financial year, but from the end of December last a change for the better has taken place and a weekly profit is being made. At December 31 the losses on omnibus operation amounted to £5,189. The rise in the cost of petrol which took place in the beginning of 1929 increased the working costs by £3,500.

Tramway traffic receipts are showing a steady rise, and a pleasing feature of this is the improvement in workmen's traffic—a sure promise of an increase in the number of passengers all round. The North-East Coast Exhibition was responsible for a 12 per cent. all-round increase in receipts. With a continuance of this general improvement there is every reason to anticipate that a sum of £30,000 will be available for the reserve and renewals fund, which at the end of 1928–29 showed a deficit of £10,191.

"Some anxiety has been felt," the general manager adds, "as to the complete renewals that would be necessary at the Manors power station and pumping station in connection with the generation of electricity. The anxiety has been relieved by the action of the Electricity Commissioners, who propose that the station shall be closed and the supply of energy be taken from the national grid, on the understanding that for a period of seven years the energy will be supplied at a cost less than the existing costs."

TRAMWAY AND LIGHT RAILWAY NOTES.

BRADFORD.

KERBSIDE LOADING—MORE HOLIDAYS FOR EMPLOYEES—OMNIBUS COMPETITION.

Where the surroundings are favourable, tramway traffic at termini is facilitated by the lines being laid close to the kerb. The latest innovation of this kind to facilitate the loading of the cars from the kerbside is to be introduced at Sunbridge Road. At a cost of about £900 the position of the track is being altered and a passenger station formed. The Tramways Committee has recommended that the annual leave of the employees should be increased from eight days to twelve. Mr. R. H. Wilkinson, general manager of the tramways and omnibuses, has suggested to the Tramways Committee that a minimum fare of 6d. should be charged for passengers entering or leaving an omnibus within the city boundary. This would automatically reduce competition and lessen congestion. He also suggested a restriction in the number of licences granted in view of the fact that local services were ufficient in the area served by the tramways and trolley omnibuses.

GLASGOW.

SUCCESS OF RECONDITIONED AND SPEEDIER CARS—A DEADLOCK IN THE RAILWAY NEGOTIATIONS.

In a report by Mr. L. Mackinnon, general manager of the Glasgow Tramways, it is stated that the high-speed reconditioned cars are meeting everywhere with approval. Easier to drive and more comfortable to travel in, they are attracting passengers, and on all routes there is a call for more. It is not uncommon to find passengers who formerly waited for omnibuses now permitting the omnibuses to pass while they wait for the cars. It is proposed to recondition 300 more cars at an estimated cost of £2,700. There are 308 reconditioned cars, and the total stock is 1,130, but over 100 are in doubtful condition. The efforts by representatives of the Tramways Committee and the L.M.S. and L.N.E. Railway Companies to formulate a scheme of co-ordinated road passenger services has not been successful.

LONDON.

INCREASING PROFITS OF THE L.C.C. TRAMWAYS—EXTENSION TO A HOUSING ESTATE—PROTECTION OF PASSENGERS.

At the meeting of the London County Council on January 28, Mr. C. W. Matthews, chairman of the Highways Committee, stated that the estimated net surplus for the year ending March 31, 1930, of £40,891 on the tramways would be exceeded. It is proposed

Digitized by Google

to extend the tramways from Mitcham to St. Helier estate, where the London County Council is erecting ten thousand houses. The London and Home Counties Advisory Committee on Traffic has reported against the proposal to require vehicular traffic not to pass a tramcar on the near side when passengers are entering or leaving. In their report the Committee state that they had had very full information from Glasgow on the working of a by-law there. As the London County Council Special Committee on Traffic has been advised that the by-law operates in Glasgow most satisfactorily, the County Council has asked the Minister of Transport to furnish the Council with the information which was before the Advisory Committee, and to indicate what other peculiar characteristics of London traffic have convinced the Advisory Committee that similar measures would not be an advantage.

MANCHESTER.

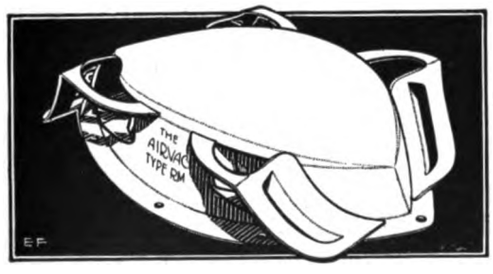
SPEEDING-UP OF THE CITY TRAFFIC—FEWER TRAMCAR STOPS—THE PASSING OF STATIONARY TRAMCARS.

In a report to the Transport Committee, Mr. R. Stuart Pilcher, the general manager, remarks that if all vehicles can be run at a faster average rate per mile there will be less congestion in the city, more passengers will be carried in a given time, and there will be room for more vehicles. Increased speed of tramcars is not only in the interests of the passenger and the public in general, but it is an aid to the reduction of operating expenses. If the schedule speed of cars can be increased, the cost of operation will be reduced; the higher the average speed, the lower the working expenses. Speeding up has been accomplished by the introduction of high-speed motors grouped on certain routes, which are capable of running at the rate of 29 M.P.H. on the level. Changes already made have increased the average schedule rate from 7¾ to 9 M.P.H., and application has been made to the Ministry of Transport to increase some of the present speeds. In an interview Mr. Pilcher has stated that tramcar stopping-places were receiving a good deal of revision. During the past ten months the Committee had done away with twenty Board of Trade stopping places, and were looking out for other places where reductions could be made without inconveniencing the public. A Manchester town's meeting has approved the Parliamentary Bill, including the clause to prohibit vehicles from passing a tramcar on its near side while passengers are entering or leaving.

SHEFFIELD.

MAXIMUM FARE REDUCTION—SUGGESTED TRAMWAY EXTENSION—A SAFEGUARD FOR POINT FITTERS—EXTENSION OF HOLIDAYS WITH PAY.

The Tramways and Motors Committee have recommended the City Council to reduce the 2d. tramcar fare, which is the maximum charge for Sheffield, to 1½d., the reduction to take place from June 1. It is proposed that the Ecclesall tramway route should be extended about a mile and a half beyond the present terminus at Silver Hill. Beyond this point the population of the district is increasing rapidly. Sheffield Tramways Committee is providing tramway point fitters with uniforms and white coats to distinguish them when working in traffic. At the January meeting of the City Council, the Tramways and Motors Committee recommended the adoption of the proposals of the Establishments Committee for the extension of the employees' holidays from eight to twelve days per annum at an estimated cost of £4,740. The Committee also recommended that the wages of certain vehicle builders be increased by 1d. per hour at an estimated cost of £1,333 per annum. The recommendations were agreed to.



Positive and Balanced Ventilation providing correct rate of Air Change at all speeds, irrespective of weather conditions, for every class of Closed Vehicle, large or small, for road or rail, at home or abroad.

AIRVAC VENTILATORS
Honeypot Works, DARLINGTON

PERSONAL.

Mr. J. W. Eunson has resigned the position of rolling stock superintendent of Plymouth City Transport Department.

Mr. W. F. Prentice, sales manager of Dorman, Long & Co., Ltd., has been elected a director of the Darlington Rolling Mills Company.

Mr. C. F. Ford, of Birkenhead, has been appointed works foreman at the Chester Corporation transport depot. There were 61 applications for the position.

Mr. J. E. Dobson has been appointed tool steel specialist and expert demonstrator for Great Britain to Edgar Allen & Co., Ltd., Imperial Steel Works, Sheffield.

Mr. C. O. Silvers, general manager and engineer of the Wolverhampton Corporation transport undertaking, has been granted a maximum salary of £1,250 per annum.

Mr. C. E. Ayres, formerly traffic superintendent of the East Surrey Traction Co., Ltd., has been appointed traffic manager of that company and Auto Services, Ltd.

Mr. A. A. Jackson, chief assistant to the general manager of the Nottingham Corporation Tramways, has become hon. secretary of the revived Social and Athletic Club, which lapsed during the war, and of the Tramways Friendly Society and the Hospitals Fund.

Mr. R. F. Dixon, late general manager of the Mansfield and District Tramways, Ltd., has been presented with a gold watch by the members of the employees' social club, which he founded nine years ago. Mr. H. Coleman, traffic superintendent, made the presentation.

Mr. George Tough is retiring from the post of city electrical engineer of Coventry on attainment of the age limit of 65 years. Mr. W. J. Marston, assistant electrical engineer, has been recommended for the vacancy by the Electricity Committee, at a salary of £1,150 per annum.

Mr. K. Laing has been appointed manager of the Mansfield Tramway Company in succession to Mr. R. F. Dixon, who has gone to the Oxford Motor Services. Mr. Laing is the son of Mr. H. W. Laing, who, until recently, was manager of the Lytham St. Anne's Corporation Tramways.

Mr. W. Simmons, late works manager of Gleniffer Motors, Ltd., Glasgow, has been appointed general manager of A. Wiseman, Ltd., Birmingham (of which Mr. A. Wiseman is governing director), manufacturers of gear wheels and pinions and overhead material for tramways and electric railways.

Mr. Arthur Eaton has been appointed operating superintendent of the East Surrey Traction Co. He was formerly superintendent of Autocar Services at Tunbridge Wells, a company now amalgamated with the East Surrey Company. Mr. W. A. C. Snook has been appointed local manager at Tunbridge Wells.

Mr. Thomas Medcalf, formerly secretary of the Swindon Corporation Electricity Undertaking and tramways manager, and recently appointed transport manager, has resigned. Mr. Medcalf has spent twenty-five years in the service of Swindon, and under his management the electricity undertaking made great progress.

Mr. C. W. T. Little is about to resign from the position of chief engineer to the British Electric Traction Co. He joined the company in 1889 as chief executive electrical engineer, and he has been intimately associated with the engineering side of many electric light, power and traction companies associated with the company, at home and abroad.

Mr. T. A. G. Margary is recommended by Wolverhampton Electricity Committee for appointment as borough electrical engineer and manager, at a salary of £1,000 per annum, rising by annual increments of £50 to a maximum of £1,200. For the past eleven years Mr. Margary has been the distributing superintendent of the electricity department.

Mr. Robert Birkett, formerly for many years electrical engineer and general manager of Southend-on-Sea Corporation Lighting and Tramways, was recently presented by the Mayor of Southend with a framed testimonial as a mark of appreciation of his services "for a period of twenty-four years, during which period has been witnessed a great growth in the electrical industry."

Mr. A. Dickson has been appointed rolling stock superintendent of Oldham Transport Department. Mr. Dickson has for some time been superintendent of the omnibus garage. There were 35 applicants for the position, and five were interviewed. The other four were Mr. W. Baxendale (Halifax), Mr. L. Bregazzi (Colchester), Mr. J. G. Cockburn (Sheffield), and Mr. G. T. Dickinson (Cambridge).

Mr. Samuel White, who was head of the firm of George White & Company, of the Bristol Stock Exchange, and chairman of the Bristol Tramways & Carriage Co., Ltd., the Bristol Aeroplane, and other companies, left £297,490, with net personalty of £267,252. In his will, the late Mr. White expressed the wish that his nephew, W. G. Verdun Smith, should follow him as chairman of the companies with which he was associated. The request has already been complied with so far as the Bristol Tramways & Carriage Co.

Digitized by Google

the Imperial Tramways Co., and the Western Wagon & Property Co. are concerned.

Mr. Robert Woodward, chairman of Edgar Allen & Co., Ltd., has retired from the board of directors. Although he is still energetic at the age of 86, Mr. Woodward considers that he cannot be in such active and close touch with the business as is desirable, and the board has accepted his resignation with regret. For forty years Mr. Woodward has served the firm, his connection with it having begun in 1890, when he went into partnership with Mr. Edgar Allen. In dealing with technical problems, he came to be looked upon as a stimulating guide, but the outstanding feature of his work was the enterprise which he imparted to the task of seeking and developing overseas trade.

Mr. Hubert J. Webber, who for seven years has been chief rolling stock engineer, automobile and tramcar sections of the Yorkshire (West Riding) Electric Tramways Co., and the West Riding Automobile Co., Wakefield, has accepted the appointment of transport manager and engineer to Cerebos, Ltd. the salt firm. Mr. Webber is a member of the Institute of Automobile Engineers and was associated with the Bristol Tramways & Carriage Co., Ltd., for over twenty years, passing through the commercial and technical sides of the company and holding the position of maintenance engineer, automobile section, prior to his appointment with the Yorkshire (West Riding) Company.

Burnley Tramways Management.—The Tramways Committee on January 22 reduced the short list of thirty-three candidates for the position of tramway and omnibus manager to three, namely, Mr. Frank H. Crossley, tramways and transport deputy manager, Ashton-under-Lyne; Mr. H. B. Sharpe, deputy manager and rolling stock engineer, Rotherham Tramways and Omnibuses; and Mr. C. H. Stafford, deputy manager and general assistant engineer, Reading Tramways. A deputation, consisting of the chairman of the Committee, Alderman Luke Thornber, the vice-chairman, Councillor J. W. Gradwell, and Alderman Buchanan, was appointed to visit the undertakings where the selected candidates are engaged. Subsequently Mr. Stafford was appointed to the vacancy.

Mr. J. R. Groves.—The many friends of Mr. J. R. Groves have heard with regret of his death, which took place in Barrow on January 27. Mr. Groves, until he retired owing to ill-health, was manager of Barrow Corporation Tramways and Omnibuses. He had previously been connected with tramways in various parts of the country for over forty years. In 1918 he was appointed manager for the B.E.T. Company at Barrow, and when the Corporation purchased the undertaking in 1921 he was retained as manager. During his term of office he was confronted with special difficulties, owing to local conditions, which were aggravated by trade depression. Some years before his retirement he suffered from ill-health, which he bore with great fortitude.

Alderman Timothy Rushton, J.P., who was appointed chairman of Leeds Tramways Committee in November, died at Leeds on January 8. The end, which was due to heart failure, was unexpected, for the previous evening he had attended a town's meeting. Alderman Rushton, who was 55 years of age, was a Labour member.

CONTRACTS AND ORDERS.

Leeds Tramways Committee has accepted the tender of the Leeds Fireclay Co., Ltd., at £645 18s., for the supply of cable conduits.

Glasgow Tramways Department has placed an order with the British Thomson-Houston Company for 2,000 Mazda traction lamps.

A. & J. Main & Co., Ltd., of Glasgow, are supplying roller shutters and wicket gates to Portsmouth Corporation for the Eastney depot.

Manchester City Council has accepted the tender of Forest City Electric Co., Ltd., Manchester, for the supply of tramway rail bonds.

Liverpool Corporation has accepted the tender of the English Electric Co. for the supply of twelve oil-cooled step-down transformers for sub-stations.

Cape Town Council has been recommended to accept the tender of the British Insulated Cables, Ltd., for the supply of copper and galvanised iron wire, at £4,609.

The British Thomson-Houston Co. has secured a twelve months' contract for supplying Mazda gas-filled electric lamps to the Great Northern Railway Co., Ireland.

Sydney Municipal Council has placed a contract with British Insulated Cables, Ltd., of Prescot, Lancashire, for the supply of underground cables at £31,407.

Salford Tramways Committee has recommended the acceptance of the tender of the Bell Punch & Printing Co., Ltd., for supply of 100,000,000 tickets and the hire of 800 punches for twelve months at £3,800.

COMMERCIAL AND TECHNICAL PHOTOGRAPHERS

Specialists to the Motor, Tramway & Railway Industries.

EXPERT OPERATORS ALWAYS AVAILABLE.
CONTRACTS UNDERTAKEN IN ALL PARTS OF THE COUNTRY.

Photographic printing and enlarging. Post Cards, Calendars, etc.
Prices on application.

AIR PHOTOS OF FACTORIES, POWER PLANTS, TRAFFIC, etc.
PICTORIAL AIR VIEWS OF TOWNS IN STOCK FOR GUIDE BOOKS.

AEROFILMS LTD. *Tel:* COLINDALE 6183, 6184.
COLINDALE AVENUE, HENDON, LONDON N.W 9

THE
Manchester Armature Repair Co. Ltd.
ELECTRICAL ENGINEERS
FORD LANE, PENDLETON, MANCHESTER

Contractors to Leading Tramway Authorities for
ARMATURE COILS
FIELD COILS
COMMUTATORS
For All Types of Tramway Motors

Telephone—Pendleton 151 *Telegrams*—"Rewinding Manchester"

ESTABLISHED 1856

Contractors for more than Half a Century to the principal British, Indian, Colonial and Government Railways &c &c.

TEARNE & SONS LTD.
BIRMINGHAM
TRANSFERS
For Tramcars, Railway Carriages, &c.
ARMS - MONOGRAMS - LETTERING
Every Description of Inside and Outside Ornamentation, Notices, etc.
Telephone—Northern 1637 *Telegrams*—"Tearne, Birmingham"

Automatic and Curb Point Controllers
Tramway & Traffic Signals
Porcelain Insulators and Fittings

THE
FOREST CITY ELECTRIC CO., LTD.,
4, Longford Road, Stretford,
MANCHESTER.

Digitized by Google

Leather Upholstery

Unsurpassed for

Public Service Vehicles

---

1 Economy & Service.

Low cost and capacity to stand hard wear.

2 Clean & Sanitary.

There is nothing to equal it.

3 Appearance & Comfort.

Refined and cheerful.

JOHN T. HART & SONS,

Grange Road,

BERMONDSEY,

LONDON, S.E.

There is no better leather obtainable.

Write for patterns and quotations and all particulars.

The English Electric Co., Ltd., has received a contract to supply, deliver and erect for the Hastings Corporation switchgear of a rupturing capacity of 500,000 k.v.a., at £11,395. At the request of the Central Electricity Board the rupturing capacity was increased to 500,000 k.v.a. from 250,000, which would have been suitable had the corporation undertaking remained independent.

Hackbridge Electric Construction Co., of Walton-on-Thames, is supplying to the Northern Aluminium Co., Ltd., of Bush House, London, transformers, comprising 25 units, with an operating voltage of 154 volts. This is both the highest voltage power transformers yet produced and the largest industrial transformer order placed in this country. The value of the contract is nearly £150,000, and it was secured in competition with the Canadian and European manufacturers.

London County Council received the following tenders for the supply of track materials and fish-plates during the year ending April 1, 1930 :—Dorman, Long & Co., Ltd., £53,896 17s. 6d. ; Cargo Fleet Iron Co., Ltd., £54,828 15s. The tender of Dorman, Long & Co., Ltd., which was comparable with the tramways general manager's estimate, was accepted. The following acceptances of tenders are notified in the report of the Highways Committee for the past quarter :—Frodingham Iron & Steel Co., Ltd., for tramway conductor rails, £7,232 ; the British Vacuum Cleaner and Engineering Co., Ltd., cleaning plant for tramcar seats at £99 3s. ; G. D. Peters & Co., Ltd., protection plates for bulkhead ends on longitudinal seats on 520 tramcars.

Glasgow Prefers Home Industry.—Glasgow Transport Committee has had before them offers for the installation of turbo-alternators for Pinkston power station. A report was submitted by the transport manager (Mr. L. Mackinnon) and by Professor Howe, chief of the electrical department of Glasgow University, dealing with the offers and specifications. The committee decided unanimously to recommend that the offer of the Metropolitan-Vickers Electrical Co., Ltd., for installing a turbo-alternator at £50,450 should be accepted. The plant will include a condenser made by Messrs. G. & J. Weir at a cost of £9,448. Several offers were received from continental firms, some of which were lower than the lowest British offer, but the committee felt that it was preferable that the work should be done here.

THE ENGLISH ELECTRIC CO.

Financial Reorganisation Scheme.

The scheme which has been prepared for the financial reorganisation of the company was made public on February 3. The losses disclosed in the balance sheet for 1927 made it apparent that financial reorganisation would eventually be necessary. By measures adopted since that date expenses have been cut down and the technical and operative efficiency of the company has been improved. Owing to lack of capital, however, improvements required could not be completed and the whole of the debenture interest has not been earned. In the circumstances the directors consider that they have been fortunate in securing the co-operation of Messrs. Lazard Brothers & Co., Ltd., for the carrying out of the scheme, which will ensure the provision of £750,000 of new capital.

Details of the scheme provide for the extension for twenty years, from January 1, 1940, of the 5½ per cent. sinking fund first mortgage debentures. Holders of the 6 per cent. convertible debenture stock will receive 35 per cent. of their stock and they will exchange 50 per cent. of their stock for 6½ per cent. preference shares and 15 per cent. for ordinary shares of £1 each. The preference shares will be written down from 20s. to 12s. 6d. per share, of which 10s. per share will be represented by preference shares and 2s. 6d. per share by ordinary shares. The issued ordinary shares will be written down from 20s. to 3s. 4d. per share. Each six shares of 3s. 4d. will then be consolidated into one ordinary share of £1.

The board of directors will be reconstructed and the existing directors have given an undertaking to resign if called upon to do so by Messrs. Lazard Brothers & Co., Ltd., and to elect the nominees of that firm in place of the directors so retiring. It is stated that the control of the company will, however, remain as hitherto in British hands. Messrs. Lazard Brothers & Co. have agreed on behalf of themselves and their associates to subscribe at par and to pay up in cash within fourteen days of the scheme becoming operative £750,000 of ordinary shares in the capital of the company.

The directors advise the debenture and shareholders to agree to the sacrifices involved in the scheme as the only way of re-establishing the position of the company. The directors are satisfied that the technical reputation of the company's products stands higher than ever before and if the present scheme is carried out they have no doubt that the company will obtain substantially increased business.

Extraordinary meetings of the shareholders and debenture holders will be held on Tuesday, February 25, 1930.

Digitized by Google

TRAFFIC RETURNS.

Tramway and Omnibus Undertakings in the United Kingdom.

NAME OF COMPANY OR CORPORATION	1929. WEEKS ENDING					1930. WEEKS ENDING					AGGREGATE.		
	Jan. 12	Jan. 19	Jan. 26	Feb. 2	...	Jan. 11	Jan. 18	Jan. 25	Feb. 1	...	Wks.	1930	Increase or Decrease
	£	£	£	£	£	£	£	£	£	£		£	£
Aberdeen Corporation	4,555	4,102	4,074	3,906	...	5,269	4,346	4,289	4,250	...	35¾	176,287	+ 14,727
Ashton-under-Lyne Corporation	1,501	1,510	1,488	1,522	...	1,609	1,637	1,691	1,611	...	44	74,135	+ 3,787
Ayr Corporation	414	395	386	392	...	448	431	438	439	...	37	22,873	+ 1,416
Barrow Corporation	757	774	796	...	...	870	864	835	...	...	43	42,266	+ 4,108
Belfast City	11,152	10,964	10,332	10,555	...	12,318	12,085	12,164	12,393	...	43½	537,536	+ 115,463
Birkenhead Corporation	4,192	4,374	3,990	4,327	...	4,612	4,661	4,529	4,543	...	44	229,101	+ 20,048
Birmingham Corporation	38,014	39,283	38,865	38,764	...	41,746	43,041	42,239	41,894	...	44	1,831,354	+ 124,303
Blackburn Corporation	1,717	1,883	1,860	1,908	...	2,084	2,145	2,101	2,250	...	43½	88,951	— 85
Bradford Corporation	13,937	13,516	13,298	13,603	...	14,360	14,892	14,758	14,504	...	44	654,107	+ 35,474
Brighton Corporation	1,929	1,963	1,960	1,944	...	2,195	2,242	2,147	2,179	...	44	115,267	+ 2,974
Burnley Corporation	3,577	3,527	3,545	3,479	...	3,790	3,859	3,583	3,463	...	...	...	...
Burton-on-Trent Corporation	413	433	404	442	...	879	905	854	854	...	44	22,977	+ 4,584
Bury Corporation	2,339	2,354	2,231	2,375	...	2,793	2,702	2,734	2,575	...	44	114,077	+ 1,186
Cardiff Corporation	6,722	6,842	6,751	7,060	...	7,623	7,834	7,542	7,435	...	43½	341,232	+ 7,891
Chatham and District	1,488	947	1,014	970	...	1,464	1,058	1,077	1,038	...	4	4,637	+ 218
Chesterfield Corporation	1,922	1,909	1,888	1,922	...	1,988	2,065	2,015	1,949	...	44	87,606	+ 3,385
Colchester Corporation	433	427	416	432	...	574	530	556	568	...	45	25,131	+ 4,669
Colne Corporation	606	637	612	637	...	651	686	653	655	...	44	31,453	+ 305
Coventry Corporation	3,456	3,528	3,511	3,623	...	3,960	4,042	4,076	3,985	...	44	168,023	+ 21,890
Darlington Corporation	986	970	959	1,003	...	1,048	1,044	1,023	1,020	...	43½	44,209	+ 1,233
Derby Corporation	2,844	2,866	2,794	3,116	...	3,191	3,324	3,292	3,241	...	44	144,248	+ 11,007
Dover Corporation	304	304	306	314	...	372	356	350	357	...	44	18,105	+ 533
Dundee City	3,232	3,152	3,099	3,148	...	3,361	3,330	3,374	3,344	...	37½	131,273	+ 5,233
East Ham Corporation	2,115	2,132	2,148	2,170	...	2,372	2,325	2,385	2,381	...	43½	101,269	+ 4,426
Edinburgh Corporation	15,955	15,749	15,168	14,848	...	17,529	17,093	17,123	17,321	...	37½	675,540	+ 37,215
Exeter Corporation	774	772	758	727	...	827	833	785	768	...	44	37,760	+ 618
Glasgow Corporation	44,917	42,951	44,137	46,380	...	51,644	51,538	51,716	50,954	...	35	1,776,908	+ 33,459
Gloucester Corporation	479	485	488	477	...	670	671	674	645	...	43½	26,336	+ 2,139
Grimsby Corporation	1,291	1,334	1,241	1,294	...	1,519	1,509	1,448	1,511	...	44	64,552	+ 5,844
Halifax Corporation	4,015	3,929	4,053	4,128	...	5,037	5,210	5,113	4,965	...	44½	210,338	+ 16,952
Huddersfield Corporation	5,722	6,050	6,047	6,062	...	6,277	6,438	6,724	6,214	...	44	282,969	+ 4,426
Hull Corporation	7,428	7,594	7,226	7,452	...	7,792	7,560	7,666	7,563	...	44	330,315	+ 9,848
Ilford Corporation	1,431	1,415	1,429	1,412	...	1,536	1,490	1,510	1,499	...	43	66,271	+ 1,309
Ipswich Corporation Trolley Buses	1,135	1,135	1,163	1,156	...	1,264	1,251	1,248	1,265	...	44	57,060	+ 3,930
Isle of Thanet	329	315	331	315	...	375	367	361	333	...	4	1,488	+ 95
Kilmarnock Corporation	420	415	397	425	...	509	473	485	463	...	37½	18,064	+ 1,285
Leeds Corporation	17,809	18,515	17,828	18,275	...	19,476	19,606	19,718	19,117	...	43½	863,387	+ 27,811
Leicester Corporation	7,836	7,986	7,965	8,123	...	8,532	8,402	8,515	8,511	...	44	373,200	+ 18,688
Lincoln Corporation Buses	930	910	836	878	...	928	912	898	879	...	44	40,992	+ 1,832
Liverpool Corporation	27,864	28,423	26,873	27,396	...	30,459	30,207	30,031	29,312	...	43½	1,329,080	+ 26,064
London County Council	79,648	79,668	79,825	78,519	...	84,801	82,933	82,753	82,929	...	43½	3,642,691	+ 54,057
Luton Corporation	330	328	326	332	...	394	378	382	378	...	43¼	17,769	+ 1,104
Maidstone Corporation	748	678	686	654	...	888	788	763	738	...	43½	35,799	+ 2,761
Manchester Corporation	37,111	37,988	37,514	37,336	...	39,957	40,329	40,118	39,455	...	44	1,761,995	+ 46,014
Middlesbrough Corporation	1,535	1,664	1,500	1,558	...	1,664	1,677	1,718	1,651	...	44½	74,115	+ 3,174
Newcastle on-Tyne Corporation	10,573	10,596	10,348	10,647	...	11,156	10,987	11,076	10,860	...	44	524,550	+ 27,539
Newport Corporation	2,201	2,207	2,148	2,318	...	2,472	2,474	2,468	2,345	...	44	108,512	+ 2,818
Northampton Corporation	1,732	1,732	1,629	1,775	...	1,908	1,859	1,784	1,781	...	43½	78,783	+ 1,142
Nottingham Corporation	8,717	9,026	8,666	8,926	...	9,887	9,561	9,817	9,884	...	43½	421,083	+ 16,513
Oldham Corporation	5,161	5,279	5,123	5,324	...	5,637	5,767	5,968	5,563	...	45	252,445	+ 11,573
Plymouth Corporation	5,139	5,095	5,168	5,025	...	5,972	5,636	5,425	5,394	...	43½	254,903	+ 10,095
Portsmouth Corporation	4,976	4,722	4,652	4,826	...	5,548	5,791	5,958	5,598	...	44	283,921	+ 12,920
Preston Corporation	1,987	2,069	2,016	2,035	...	2,160	2,250	2,169	2,117	...	43½	97,138	+ 3,858
Rawtenstall Corporation	1,389	1,262	1,292	1,309	...	1,371	1,408	1,382	1,325	...	44	60,545	+ 1,155
Reading Corporation	2,202	2,274	2,189	2,338	...	2,526	2,360	2,353	2,420	...	44	107,959	+ 2,828
Rochdale Corporation	3,965	4,082	4,049	4,107	...	4,308	4,472	4,455	4,287	...	...	196,865	— 1,366
Rotherham Corporation	2,397	2,343	2,460	2,471	...	2,714	2,770	2,902	2,683	...	45	123,938	+ 10,349
Salford Corporation	10,254	10,387	10,006	10,270	...	11,341	11,648	11,408	11,414	...	44	496,153	+ 32,468
Sheffield Corporation	19,274	19,791	19,769	20,205	...	20,998	21,233	21,048	21,039	...	44	924,621	+ 30,118
Southampton Corporation	3,546	3,693	3,691	3,540	...	4,291	4,259	4,321	4,186	...	44	186,353	+ 17,889
Southend-on-Sea Corporation	1,728	1,752	1,666	1,769	...	1,947	1,942	1,933	1,908	...	43½	108,181	+ 644
Southport Corporation	1,353	1,346	1,301	1,351	...	1,501	1,463	1,507	1,431	...	43½	74,806	+ 312
St. Helen's Corporation	1,752	1,837	1,919	1,798	...	2,134	2,107	1,988	2,107	...	43¼	89,261	+ 6,060
Sunderland Corporation	2,119	2,179	2,118	2,150	...	2,317	2,354	2,400	2,261	...	44	107,566	+ 4,216
Swindon Corporation	533	554	541	557	...	913	889	905	913	...	43½	36,001	+ 10,363
Wallasey Corporation	2,562	2,478	2,644	2,617	...	3,078	2,931	3,022	2,956	...	43½	149,356	+ 17,677
Walsall Corporation	3,234	3,179	3,085	3,264	...	3,534	3,629	3,528	3,544	...	44	152,201	+ 13,367
Walthamstow Corporation	2,104	2,129	2,116	2,111	...	2,396	2,352	2,379	2,369	...	44	107,510	+ 7,720
Warrington Corporation	1,275	1,296	1,248	1,311	...	1,408	1,424	1,409	1,378	...	44	59,727	+ 2,382
West Ham Corporation	5,347	5,371	5,385	5,332	...	6,201	6,317	6,314	6,190	...	43½	267,059	+ 23,814
Wolverhampton Corporation	5,703	5,698	5,585	5,833	...	5,919	6,219	5,984	5,939	...	44	271,743	+ 25,293
York Corporation	1,267	1,215	1,250	1,244	...	1,581	1,450	1,418	1,511	...	45	66,202	+ 4,934

Underground Electric Railways Company of London, Limited.

NAME OF COMPANY	1929. WEEKS ENDING					1930. WEEKS ENDING					AGGREGATE.		
	Jan. 12	Jan. 19	Jan. 26	Feb. 2	...	Jan. 11	Jan. 18	Jan. 25	Feb. 1	...	Wks.	1930	Increase or Decrease
	£	£	£	£	£	£	£	£	£	£		£	£
Underground Rlys. (Common Fund Co.)	272,500	271,100	269,100	262,200	...	305,500	300,100	302,100	289,100	...	5	1,384,000	+ 137,400
London and Suburban District	37,500	37,900	37,800	37,300	...	44,400	43,900	44,300	42,500	...	5	202,800	+ 28,500

Colonial and Foreign Tramway Traffic Returns.

NAME OF COMPANY OR CORPORATION	1929 WEEKS ENDING					1930. WEEKS ENDING					AGGREGATE.		
	Jan. 12	Jan. 19	Jan. 26	Feb. 2	...	Jan. 11	Jan. 18	Jan. 25	Feb. 1	...	Wks.	1930	Increase or Decrease
	£	£	£	£	£	£	£	£	£	£		£	£
Anglo-Argentine	87,548	85,670	84,212	84,511	...	85,839	84,570	79,867	84,446	...	5	415,718	— 13,008
Buenos Aires Lacroze	13,265	13,495	13,177	12 996	...	12,222	12,222	12,440	12,528	...	31	357,596	— 31,533
Calcutta *Rupees*	138,556	139,386	130,173	125,638	...	126,040	129,155	122,616	120,053	...	4½	574,978	— 70,527
Madras (2 weeks) *Rupees*	48,790	...	42,605	...		49,351	...	44,960	...	...	4	94,311	+ 2,916

	1928.		1929.				1929.					1930.	AGGREGATE.		
	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Mths.	1929–30	Increase or Decrease
	£	£	£	£	£		£	£	£	£	£	£		£	£
Brazilian Trac. $	3,771,086	3,718,263	3,710,347	3,698,213	3,673,543	...	4,333,460	4,225,416	4,289,258	4,145,850	3,984,311	...	12	49,351,215	+ 6,576,402
British Columbia $	1,121,778	1,101,483	1,145,394	1,192,080	1,228,405	...	1,168,753	1,169,278	1,230,278	1,270,922	1,255,522	...	6	7,251,473	+ 400,836
Burma ... Rs.	65,886	69,309	72,878	66,905	62,582	...	61,309	59,467	66,885	62,191	63,485	...	5	313,337	— 24,223
Cape Town ...	28,060	27,145	30,021	...	32,709	...	27,636	26,579	27,501	...	30,332	...	...	...	...
Carthagena & H.	638	1,189	1,701	1,130	676	732	1,169	660	1,953	1,350	1,314	1,351	1	1,351	+ 619
Durban ...	24,302	22,545	23,402	22,498	26,123	...	25,619	22,371	24,320	23,214	25,452	...	5	120,976	+ 2,106
East India ...	3,978	3,851	3,941	3,803	3,670	3,562	4,152	4,126	4,078	3,905	3,721	3,553	6	23,535	+ 725
Kalgoorlie ...	2,114	2,056	1,738	...	...	...	2,100	1,980	1,703	...	...	...	10	17,174	— 291
La Plata	8,762	9,089	9,781	9,789	10,300	...	9,322	9,328	14,104	...	10,327	...	12	116,149	+ 2,604
Para	14,547	14,578	17,246	14,810	14,360	...	15,224	15,200	17,887	15,542	14,487	...	1	14,487	+ 127
Port Elizabeth ...	7,365	6,741	7,404	...	9,830	...	7,402	7,190	7,593	...	9,115	...	...	...	...
Rangoon ... Rs.	120,962	119,510	126,400	110,770	130,110	116,835	123,550	122,850	132,742	137,703	138,400	155,080	1	155,080	+ 38,245
Shanghai ... $	310,497	327,997	351,115	327,363	321,970	...	335,172	365,828	371,611	360,247	345,415	...	12	4,073,322	+ 370,577
Singapore ... $	107,000	109,000	113,000	107,000	111,000	115,000	130,000	126,000	133,000	126,000	129,000	139,000	4	527,000	+ 81,000
Winnipeg ... $	462,591	475,363	527,790	553,186	586,264	...	494,642	518,521	545,308	597,391	641,362	...	12	6,635,237	+ 448,374

Digitized by Google

JONAS WOODHEAD & SONS LTD.
LEEDS.

SOME OF WOODHEADS' SPECIALITIES.

LAMINATED SPRING EXPERTS

TELEPHONES
20814
20815
LEEDS

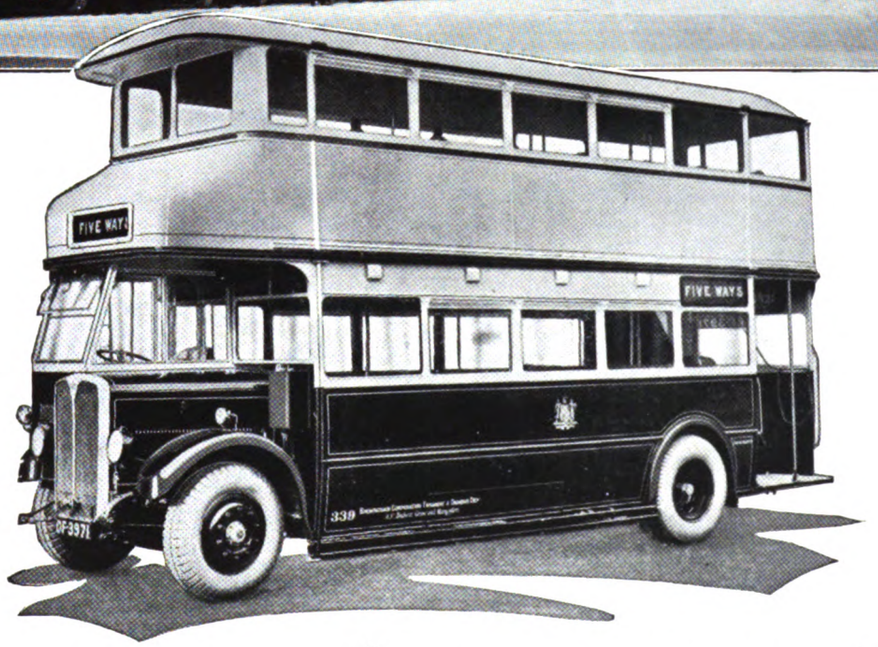
TRADE MARK

TELEGRAMS
FORGE
LEEDS

Digitized by Google

AEC

REGENT BUS



Announcing the recent receipt of a valuable order

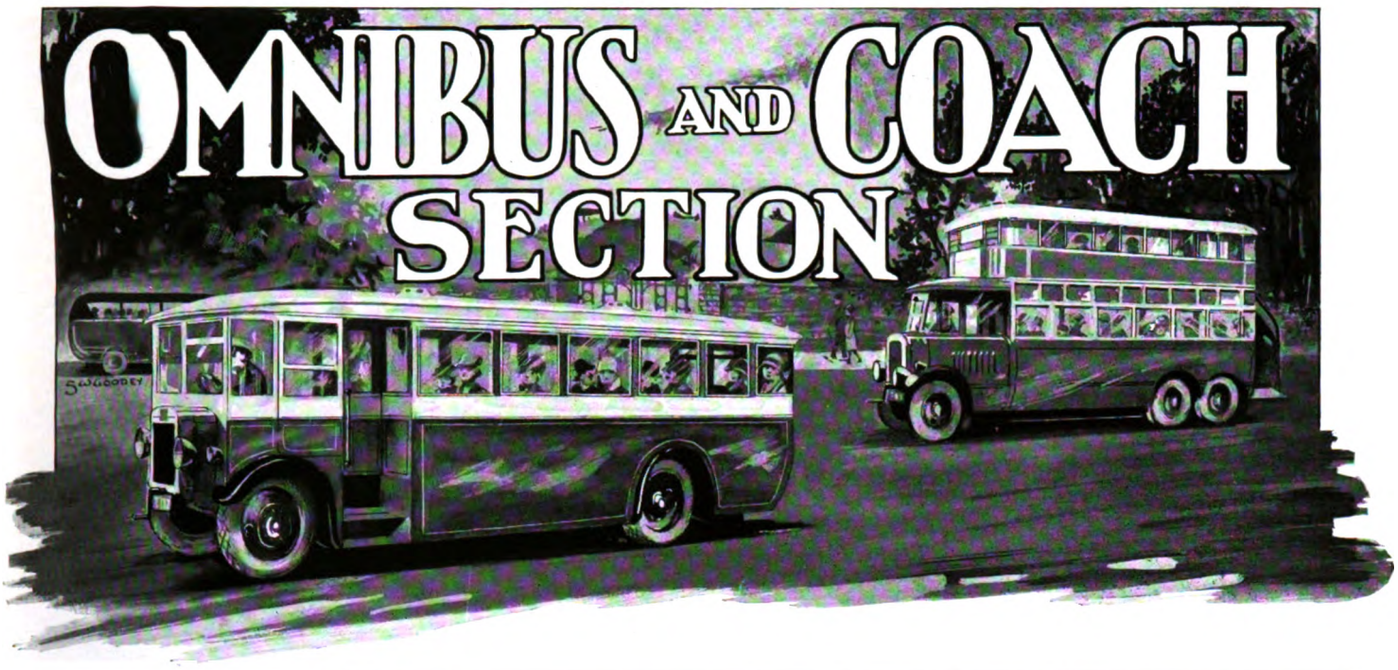
75

BIRMINGHAM CORPORATION

436

The Associated Equipment Co., Ltd., Southall, Middlesex

Digitized by Google



OMNIBUS AND COACH SECTION—TWENTY-FIFTH YEAR OF PUBLICATION.

PROTECTION FOR THE LONDON DRIVER.

An attractive feature of the latest type of omnibus with which the London General Omnibus Co. is experimenting is the adequate protection that is provided for the driver. Since the pneumatic-tyred vehicles of the company's huge fleet have been permitted to run at a speed of 20 M.P.H., efficient protection has become imperative. Thanks to the present enlightened control of the Metropolitan licensing authority the prohibition of the wind-screen was withdrawn in April last, thus enabling efficienct front and side screens of safety-glass to be used on the 200 double-deck and 70 single-deck vehicles on six wheels which the company is now constructing. Similar protection is being fitted to the six examples of the quick-loading "S.T." omnibus, described and illustrated on other pages of this issue, which are now being placed in service. These advances, however, leave the drivers of the several thousands of solid-tyred omnibuses temporarily uncared for. We say "temporarily" for the reason that the company's officials are doing their best to evolve a screen that will be satisfactory to Scotland Yard and to the drivers. As soon as Lord Byng relaxed the old regulation a screen of safety-glass was sanctioned for fitting to a considerable number of vehicles. This pattern did not meet with the approval of the men, who complained that the draught was more harmful than the unprotected seat. That verdict is not surprising, for the two-piece screen had side erections less than 6 in. wide. It is to be hoped that the next type to be tried will show that Scotland Yard has a better appreciation of what a windscreen should be. The officials of the department should bear in mind that, first of all, full protection for the omnibus driver is demanded by the passenger, who knows that his own safety depends upon the comfort of the former. The public carriage department ought to be aware that London is not the only place where traffic is heavy, continuous and congested, and that in the provinces public vehicles are permitted to have full screens of ordinary glass. Moreover, there are coaches by the hundred running to and from the Metropolis which are fitted with screens that fully enclose the driver, and no accident has been reported during the several years that this traffic has been in existence.

SERVICE AND GARAGE EQUIPMENT.

Compared with other countries and in particular with the U.S.A., the owners of public passenger, commercial and private motor vehicles are oppressively taxed. All owners are therefore interested in any movement that promises to bring about a cheaper, more efficient and therefore more popular operation of their vehicles. Service and garage equipment is now recognised as a vital factor in that direction, and a new move in connection therewith by the Society of Motor Manufacturers and Traders is of importance. The Society has realised that the problems affecting their service equipment members are not always analogous with those of the Accessory and Component Section, and has therefore formed a Service and Garage Equipment Section to deal with this important branch of the industry. At a meeting on February 4, of members interested in the maufacture, importation and distribution of service and garage equipment, a committee was elected to carry on the affairs of the section, with Mr. H. E. Timson, one of the most experienced owners operating from London, as chairman. Good work in the direction indicated has all along been done by trading firms, but it will be to the common good to have in existence an impartial body such as this committee. One matter that might claim attention from the committee is the encouragement of provision for dealing with breakdowns of public service vehicles due either to a defect or to an accident. Hold-ups due to the former cause are not of common occurrence nowadays, but there are a number of contingencies to be reckoned with that are beyond the control of the most experienced and careful driver. Hence the need for adequate breakdown equipment. No operators ought to be without the means of dealing with breakdowns in their own territory, and now that jointly-worked services in a wide area have become numerous

Digitized by Google

OMNIBUS AND COACH SECTION

one or other of the owners no doubt provides equipment at outlying points. Beyond this provision there is need for equipping more town and wayside garages with the appliances needed for the salvage of heavy vehicles. The numerous and still increasing long-distance services now share with commercial vehicles the risk of mishaps that may delay other traffic.

FUEL EXPERIMENTS IN PROGRESS.

In an all-round review of the substitute fuel position given by Mr. W. Vane Morland, general manager and engineer of Walsall Tramways and Motor Services, at the last annual meeting of the Managers' Section of the Municipal Tramways and Transport Association, reference was first made to power alcohol. Although this fuel needs only a slight carburettor alteration, it is not prominent in this country, despite the facilities which have been given for its production of late years. In France dear petrol has brought coal gas into use again, and Mr. Morland considers that this war-time expedient might be revived here if suitable metal containers were available, as gas could be obtained at less than 1d. per omnibus mile for a double-deck vehicle. As to steam, if the Sentinel Company could evolve a vehicle as successful as their machine for heavy work, the author would gladly use one, for the fuel charge would not exceed ½d. per mile. Interest will be aroused by the statement that 0.30d. would be the fuel cost of a Diesel-engined omnibus. The heavy oil used in this engine can be obtained from coal, and its fire risks are negligible. The engine has neither carburettor or magneto, there is practically no hard carbon deposit to call for periodical decarbonising, and lubrication does not run the risk of being affected by dilution of the main supply. In the Saurer and the Mercédès Benz lorries, two promising examples of the Diesel engine were placed in service last year, the second named being awarded the Dewar Trophy in R.A.C. tests. As the present heavier weight of the Diesel engine entails higher taxation, Mr. Morland appeals to the Ministry of Transport to allow some latitude to it, especially as its general adoption might ultimately mean that its fuel might be obtained from coal. For some years British manufacturers have produced heavy vehicles for operation on gas obtained from a producer attachment consuming wood or other vegetable fuels obtainable overseas, and the Karrier Company states that only a certain increase in the price of petrol will be needed to bring producer gas into prominence in the British Isles. What Mr. Morland had to say concerning the trolley omnibus is worth quoting. "The recent tax and the increase in the price of petrol undoubtedly," he says, "strengthens the case for the trolley omnibus over well-established fairly heavy traffic routes, if these are suitable for the erection of the overhead equipment, and the operator can afford to ignore the limitations of a route-bound vehicle in the general traffic scheme. It would receive an additional fillip if some suppliers of electrical energy could be cured of their habit of regarding the local transport undertaking as a milch cow. The prices paid appear to be quite out of proportion to present-day generating costs."

THE OMNIBUSES' BILL.

SECOND READING IN THE HOUSE OF COMMONS.

In the House of Commons on Feb. 8, Mr. Scurr (Lab., Mile End) moved the second reading of the Omnibuses Bill, which seeks to make provision for enabling local authorities to provide and run omnibuses within and without their districts. He said the scope of the Bill was limited to those local authorities who were already authorised by Parliament to operate passenger services by tramways, trolley omnibuses, or motor omnibuses, and its purpose was to obviate the cumbrous and expensive process of having to come repeatedly for fresh Parliamentary powers. It would enable working agreements to be entered into by local authorities and other bodies for extensions of services. A return recently issued showed that 947 local Acts and Provisional Orders had been obtained by local authorities for transport powers at a cost of £748,000. The measure would secure real economy in that regard. There were now thirty transport Bills before Parliament. The Bill was supported by every local authority in the country.

Mr. Arnott (Lab., Kingston-on-Hull) seconded.

Col. W. Ashley (C., New Forest), moving the rejection of the Bill, said the Minister of Transport would have to throw over either the Government's Road Bill now before Parliament or the present measure, the two being incompatible. The Bill did away with all Parliamentary control over municipalities in regard to transport, and destroyed all safeguards of the ratepayers against the promotion of hare-brained schemes.

Mr. Herbert Morrison (Minister of Transport) said that Col. Ashley, as President of the Anti-Socialist Union, might be expected to be a whole-hogger against municipal enterprise. His record, however, as Minister of Transport had a pinkish hue about it. He had officially given seventy-six consents to thirty-two local authorities for running omnibuses on one hundred and thirty-seven routes. He had not only flirted with municipal omnibuses, but he had embraced them. He was afraid that on his record, Col. Ashley was, from the anti-Socialist point of view, a lost soul. He did not believe the question, however, to be a political one, and was glad to know there were Conservative members who would vote for the Bill, or go home by an early train. He regarded the matter as one of reasonable justice to local authorities in competition with privately owned undertakings.

"As to the relations between the present Bill and Part 5 of the Road Traffic Bill," Mr. Morrison continued, "I want to make it absolutely clear that on the principle of this Bill, and on the principle of Part 5 of the Road Traffic Bill, the Government will not budge. Given the support of the House of Commons, we are going to put that principle through."

There were, he admitted, differences between the two. He himself thought Part 5 the better, but the Government would not hesitate to reconcile the two, and bring them into harmony. He was perfectly willing to listen to those who desired safeguards inserted, but, he went on, "I have never had a chance to do it. They have not come to me. They have been busy in the House of Lords, which cut out that part of the Bill. I am always willing to negotiate. The interests concerned really ought to understand that it is better to come and talk about matters and see what can be done on points of details. On the main principles we shall not budge."

It was intended, after the second reading of the Road Traffic Bill, either to instruct the Committee that it was to re-incorporate Part 5, or to secure that both the Road Traffic Bill and the present measure should be considered by the same committee, with instructions that it had power to amalgamate the two. He hoped the Bill would be given a second reading by a large majority.

Col. Howard-Bury (C., Chelmsford), opposing the Bill, said it was not a question of Socialism, but of giving ratepayers fair protection against their councillors.

Mr. Mander (Lib., Wolverhampton) favoured giving municipalities an equal position with omnibus-owning companies.

Sir G. Rentoul (C., Lowestoft) objected to the Bill as embodying the principle of "municipal trading unlimited." Private enterprise should have reasonable protection for the capital it had expended.

Mr. Womersley (C., Grimsby), whose name appears as one of the backers of the Bill, said that after hearing the debate he was still unrepentant. He was quite satisfied he had done the right thing. There was no "socialism" in endeavouring to secure fair conditions for local authorities which carried on transport.

The second reading was carried by 203 votes to 118.

Digitized by Google

OMNIBUS AND COACH SECTION

A QUICK-LOADING "GENERAL" OMNIBUS.

EXPERIMENT IN FACILITATING TRAFFIC AT PEAK PERIODS.

Notwithstanding the advance in speed from 12 to 20 M.P.H. granted last year to pneumatic-tyred omnibuses, traffic studies have shown that there is a limit to the lessening of congestion that can be effected by increased speed alone. In areas where any degree of congestion prevails the slowest moving vehicle, unless it is made to keep as near as possible to the kerb, continues to reduce the speed of the main body of traffic. A further slowing down is produced by those vehicles whose drivers have need to draw up outside of business premises.

In busy areas in London, omnibus stopping-places are regulated, but observant L.G.O.C. officials have noted that existing conditions do not preclude the possibility of attaining a higher point-to-point speed for the omnibus if a reduction can be effected in the time spent at the stops. The company's engineers at the Chiswick works have therefore constructed half-a-dozen omnibuses to a design ("S.T.") which they hope will achieve the required speeding up in the ingress and egress of the passengers during the rush period. This is to be effected by an enlargement of the platform and by the removal of the staircase from the stereotyped position on the platform to the site hitherto occupied by the short off-side longitudinal seat.

New London Luxury Omnibus with a platform facilitating rapid loading.

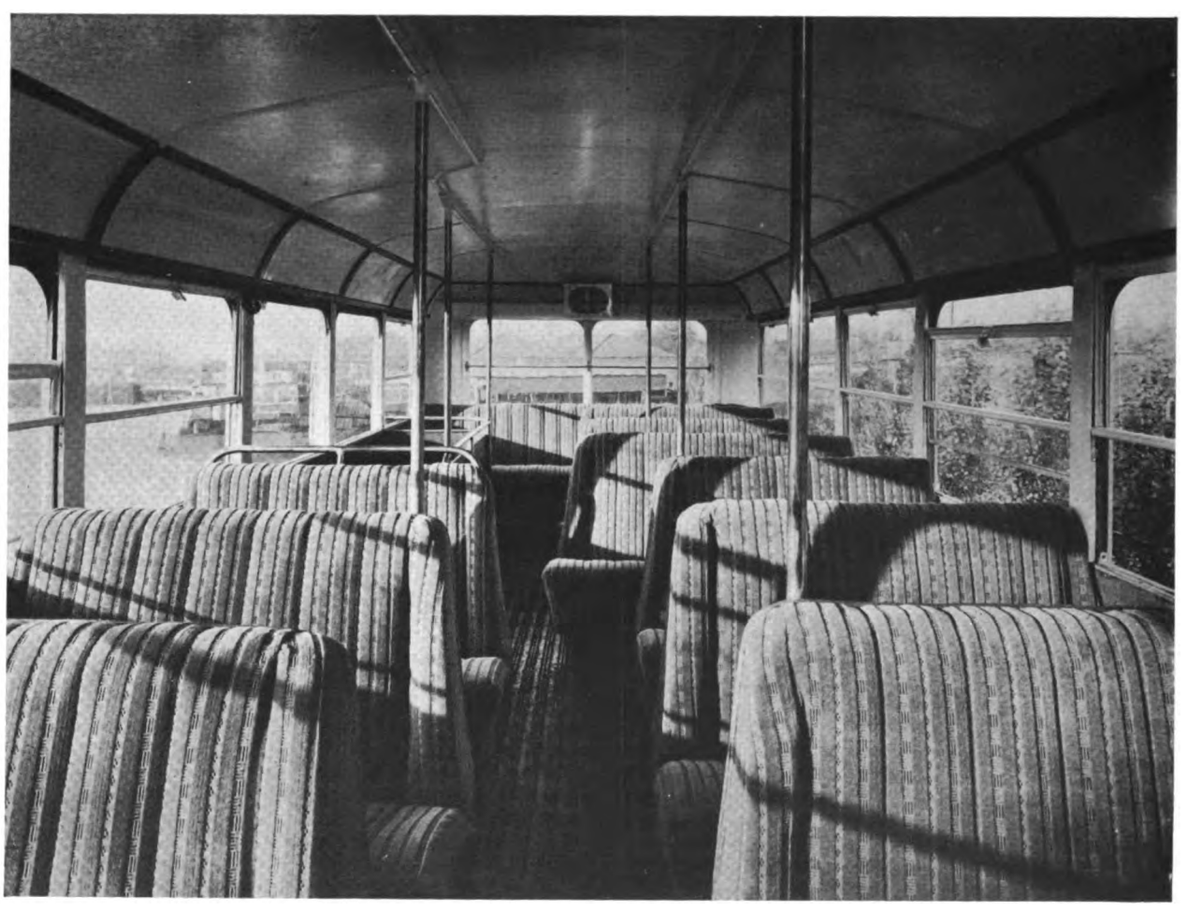
At its base this new straight staircase is placed beside the entrance to the lower saloon, and the last of the seven easily climbed steps enters the top saloon at a position not far from the centre of the body. An entirely unobstructed platform of more than twice the usual area is thus available, upon which six or more passengers can find standing room before proceeding into one saloon or the other. Consequently there should undoubtedly be a marked reduction in the time required for loading and unloading. The platform, moreover, has become a vestibule, covered overhead by the top saloon and sheltered on the off-side and in rear by the body structure, lighted by windows of safety glass. No longer has the passenger to climb or descend a staircase exposed to the rain and wind, to the accompaniment of the alarming jolting of a solid-tyred vehicle when the road surface is bad. One can stand on the platform or on the staircase with ease, thanks to the 36-in. by 8-in. balloon tyres, the rear axle having two pairs of twins.

Combined with the springing of the A.E.C. "Regent" chassis, which seems to be faultless at whatever load is being carried, the new vehicle gives as much comfort as the best private car. That, at any rate, was the conclusion arrived at by a TRAMWAY AND RAILWAY WORLD representative after two journeys round the test track at the Chiswick works and a trip from the works to Charing Cross, by invitation of Mr. Geo. Shave, the chief engineer and manager of the London General Omnibus Co. To substantiate this statement the fact may be mentioned that reading can be engaged in with pleasure. When the vehicle is full it is not unlikely that the ease which a passenger feels in standing on the platform will result in it being used to accommodate the five standing passengers who are permitted to be carried at the rush periods. This will mean additional comfort for the occupants of seats in the lower saloon. The platform is sufficiently spacious to enable the conductor to collect the fares of such passengers as are disposed to ride there rather than to suffer the inconvenience of standing in the gangway of the saloon.

Another noteworthy point is that the two saloons are saloons in fact as well as in name. This immense improvement is particularly noticeable in the case of the upper saloon, which marks as great an advance over the upper saloon of the solid-tyred omnibus as the top cover of the latter does over the open deck. For all this progress there are two additional contributory causes. One is that the licensing regulations now permit the body to be 7 ft. 6 in. wide in place of 7 ft. 2 in. The other is that one seat has been sacrificed in the total accommodation. While the lower saloon seats 20, the upper saloon provides seats for 30 passengers. Downstairs, all except four of the passengers will face forward, the exceptions being accommodated on a side seat facing the wall of the staircase. As this wall is partly hidden by a mirror, 4 ft. wide by 1½ ft. in depth, the seat may well become known as "Vanity" seat and one can predict who will be the principal occupants.

Digitized by Google

Interior Staircase in the "S.T." Type Omnibus, which has wide transverse seats.



The Upper Saloon, showing the Staircase Opening and the rear emergency window-exit.

Interiors of New Quick-Loading London General Omnibus.

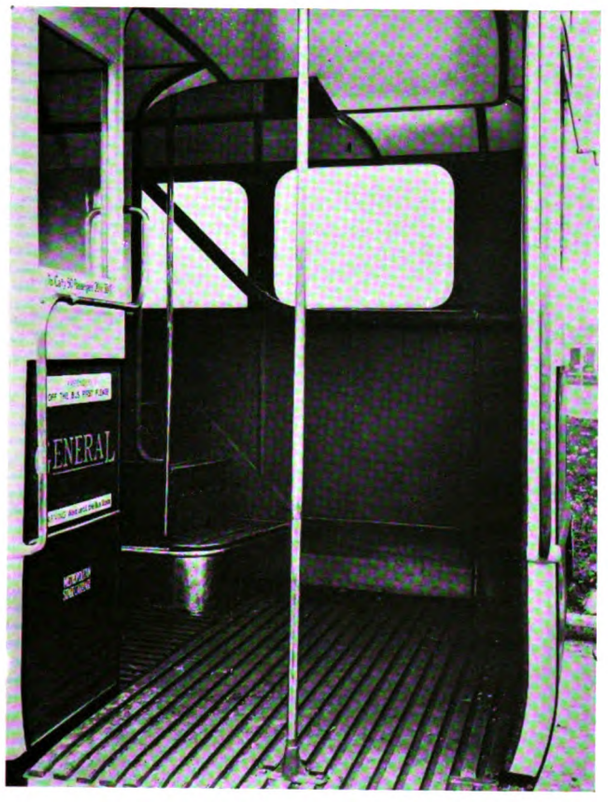
(Electric lighting in both Saloons is through the curved translucent panels).

Digitized by Google

OMNIBUS AND COACH SECTION

There is a small mirror between the two windows in the front of the lower saloon. In both saloons the front and rear windows are of unsplinterable glass.

In the lower saloon there are four pairs of seats on each side, in addition to the short longitudinal seat already referred to. Ample space is given to the two passengers on each seat, thanks to the extra width of the body. Being super sprung, slightly tilted and upholstered in fawn colour, the seats on both decks are decidedly luxurious. Upstairs there are four rows of double seats on the off-side and eight on the near side, two seating three persons. More



Enclosed platform with entrances to both decks.

room is given in the gangway by the seats being staggered. At the rear of the compartment there is a seat facing forward which will accommodate five or six persons.

Above the back of this seat is a double window which will serve as the emergency exit required by the Metropolitan licensing authority on omnibuses which have an enclosed stairway. In a small, central, glass-covered recess over the window is a handle, and an inscription above the recess reads as appended: "To open, break the glass; turn handle right or left. Push window." The window is of safety glass and as the vehicle is of low height passengers should have no difficulty in dropping to the roadway or in stepping out of the top deck in the event of the vehicle overturning. From the roof to the ground the height is 12 ft. 10 in. As there are no partitions, the upper saloon has a pleasing appearance. The side and rear of the stairway is guarded by a thigh-high barrier.

In both compartments the artistic appearance is enhanced by the arrangement of the artificial lighting, the electric bulbs being concealed by translucent panels of a non-inflammable material named acetaloid, to the introduction of which by the L.G.O.C. reference was made in THE TRAMWAY AND RAILWAY WORLD of January 16. General appearance is also enhanced by the small windows at the sides of each saloon. These are in two parts, an upper and a lower, and certain of the upper parts can be slid down beside the lower parts or raised from that position, at the discretion of the passengers. Instead of the usual cords for bell operation, there are pressure devices of untarnished metal, two in the lower saloon and one at the head of the staircase. Grab handles are of the same material. An innovation is that the staircase and other rails are flat with curved edges and covered in leather. Glazed destination indicators are let into the upper part of the front and rear of the omnibus, and can be operated from the platform and front end of the vehicle. These are illuminated internally by electric lamps.

The omnibus body is of wood, metal shrouded, the pillars and sticks being metal flitched. Externally also the design of the "S.T." vehicle is pleasing. The colour scheme is the standard "General" red, with a white enamel finish for the two saloons.

Not the least important improvement is to be seen in the form of construction adopted for the driver's cab. The company has been allowed by Scotland Yard to place a double sliding window on the near-side in place of the ha'f-window previously sanctioned. In order to permit of hand signals being given the off-side still has only a half window, but the new arrangement prevents the draught encountered in the experiment on an earlier type of vehicle. Of course, these lights, front and sides, are of safety glass.

Little need be written concerning the new "Regent" chassis of the Associated Equipment Co., upon which the "S.T." bodies are mounted, as it was described and illustrated in our issue of November 21. It has the A.E.C. 95 H.P. six-cylinder overhead poppet-valve engine, and the driver is seated on the off-side of the engine. This engine almost doubles the horse-power which is now being given to L.G.O.C. omnibuses as compared with a few years ago, and, like the gear-box, it is quiet and smooth in operation.

Looking down the Staircase from the upper deck.

On the Brooklands track the "Regent" has reached 50 M.P.H. Acceleration and braking are eminently satisfactory. To the suspension a just tribute has already been paid. A unique feature is the off-centring of the back axle casing, thus effectively reducing the height of the floor of this low-loading vehicle.

One route upon which the "S.T." type may be found is from Shepherd's Bush to Liverpool Street.

INSTITUTION OF AUTOMOBILE ENGINEERS.—Sir Herbert Austin, K.B.E., has been elected president of the Institution of Automobile Engineers for 1930-31. Mr. O. R. F. Engelbach and Mr. W. J. Tennant have been added to the list of vice-presidents.

Digitized by Google

OMNIBUS AND COACH SECTION

ROAD TRAFFIC BILL PASSES THE LORDS.

GOVERNMENT DEFEAT ON STATUTORY MONOPOLIES.

In the House of Lords on January 23, Earl Russell, who was in charge of the Road Traffic Bill, moved a new clause (which was adopted) in place of Clause 18, limiting to 5½ hours the time for which drivers of public service vehicles, locomotives, motor tractors and goods vehicles may remain continuously on duty. It is also to be illegal to permit continuous periods amounting in the aggregate to more than eleven hours in any 24 hours beginning two hours after midnight, or for such periods that the driver is not allowed an interval of at least ten hours for rest in every consecutive 24 hours.

An amendment was adopted to provide that in case of an accident involving bodily injury, the authorised insurer should be required to pay the expenses incurred by any hospital for treatment of injured persons to an amount not exceeding £25 for each person.

Earl Russell accepted an amendment to include within the definition of an "authorised insurer" a person who, being the owner of not less than 20 vehicles, made adequate financial provision in the opinion of the Minister for meeting any liability that might be incurred through injury or damage occasioned by his vehicles.

Persons nominated to the list from which the Minister of Transport will select the traffic commissioners in each area are to be required to declare whether they have financial interest in any transport undertaking.

A proviso was added to Clause 63 to prevent conflict of jurisdiction between the commissioners and tramway authorities who have powers to fix minimum fares.

Sub-section (6) of the new Clause 63, introduced by Earl Russell, stated that a road service licence in respect of any route shall be required notwithstanding that the provision of a service of stage carriages or express carriages was authorised by special Act or Order of Parliament, but that a licence shall not be refused if the route is specifically so authorised.

The Earl of Cranbrook moved an amendment to omit the proviso to the clause, which proviso reads as follows: "Provided that notwithstanding any restrictions to the contrary, whether contained in this or any other Act, or otherwise having the force of law, it shall be lawful for the commissioners to grant, under and in accordance with the provisions of this section, a road service licence in respect of any route or any part of a route to any person applying for such a liecnce."

Several peers supported this amendment and protested against the Bill being used to take away rights which had been obtained by tramway and other authorities by means of Private Bills.

Earl Russell said there had been thirteen of these monopolies obtained in the last two years, and if these cases were taken away from the jurisdiction of the commissioners they would be left without that general power of regulation which the Government thought was so important they ought not to be deprived of it.

The amendment to delete the proviso was carried by 36 to 11.

On the motion of Earl Russell, the original schedule of speed limits for vehicles was deleted and a revised schedule substituted. For ordinary motor cars there is no limit if the vehicle is adapted to carry not more than seven passengers excluding the driver. If the vehicle is adapted to carry more than seven passengers, the speed is to be 30 M.P.H., that limit also being imposed on goods vehicles if fitted with pneumatic tyres and not drawing a trailer. For other vehicles with trailers and for locomotives the speeds range from 16 to 3 M.P.H., the latter being in any city, town or village.

On Feb. 4, the House adopted an amendment by the Earl of Cranbrook to sub-section (6) of Clause 66 (validity of licences in other areas) to preserve the rights of companies who were operating a service of tramways or omnibuses for a municipality under powers obtained by an Act of Parliament.

The Bill was then read a third time, and will go to the House of Commons.

LONDON TO EDINBURGH FOR £1.—Thomson's Tours, Ltd., of Edinburgh, propose, on March 1, to run double-deck omnibuses between London and Edinburgh. The omnibus will seat 40 passengers and the fare will be £1 for a single journey. It is estimated that 10,000 persons were carried last year by single deck vehicles.

ADVANTAGES AND LIMITATIONS OF THE TRAMCAR, TROLLEY & MOTOR OMNIBUS.

By R. H. WILKINSON.*

On account of local conditions it is not possible to set out clearly the advantages and limitations of each type of vehicle. In a few large cities cars seating over 70 people are considered to be the most suitable for heavy traffic, but in most towns vehicles of this capacity are not favoured and the question of seating capacity, therefore, does not weigh in favour of the tramcar. Now that other types of vehicle are occupying approximately the same road space per seat as the tramcar the advantages in favour of the latter are gradually vanishing. It is the case, I believe, that on heavy trafficked routes the tramcar possesses the advantage in regard to speed.

The chief thing, to my mind, in favour of the tramcar is tradition, although it may be that in a few big cities a large capacity tramcar would be the most economical vehicle to operate. It has a large seating capacity; operates safely; is comfortable to ride in; can make headway in fog when other traffic is held up, and in frost and snow is not so liable to get out of control (although, paradoxical as it may seem, the omnibus can operate on steeper gradients than the tramcar). Its spacious platforms are also useful for carrying luggage and parcels; it uses electricity obtained from local fuel and can be driven from either end, thus avoiding room necessary for turning.

The disadvantages of the tramcar are its high initial cost for permanent-way or track; passengers must board and leave the car in the middle of the road (an increasingly dangerous practice and one which also causes delay to other traffic); one car breaking down or being obstructed holds up and interferes with all the service on that route. Another is that of noise, which can only be kept in reasonable bounds by maintaining the cars and the track in good condition. The points and crossings further augment this trouble, and when corrugation occurs the noise is intolerable. The tramcar also requires overhead equipment.

Admitting the lesser degree of safety of omnibus operation under certain climatic conditions, the public prefer this type of vehicle, and this requirement has to be catered for or lose their patronage. The extra speed of the omnibus is largely due to its flexibility, which enables it to overtake other vehicles and thus provide an express service between distant points where the vehicular traffic permits. Had it to undertake the ordinary tramway duties in densely populated areas it would not be as efficient and economical as the tramcar.

The motor omnibus has the following disadvantages:—

- Slow acceleration;
- Jerks due to gear changing;
- Depends on petrol supplies from abroad;
- Noisy engines and gears;
- Emits noxious fumes
- Short life and high depreciation;
- Higher operating costs;
- Too many complicated parts;
- Fire risk.

Advantages of the motor omnibus over other vehicles are:—

- High speeds on open roads;
- Greater mobility;
- When broken down does not interfere with remainder of service;
- Good for testing a route for traffic, there being no fixed equipment;
- Being self-contained, requires no outside equipment;
- Loads at kerb edge.

With regard to the trolley omnibus, it has nearly all the advantages of the tramcar and others in addition, such as:—Ability to pass round an obstruction; higher average speed and increased receipts; the most silent vehicle in public service; low "all-in" costs. It has not the speed of the motor omnibus on the open road; is held up should the supply of electricity be cut off—an unusual occurrence. It cannot overtake another trolley vehicle, and requires overhead equipment like the tramcar. It is, however, a totally British product, both in construction and during its life, and derives its power from home-produced fuel. It is a valuable load to any electricity supply station and tends to cheapen the whole supply. The Bradford Tramways account for electricty is approximately £90,000 per annum, or 1.113d. per unit.

The author referred to two double-deck four and six-wheel trolley omnibuses which he constructed and placed in service at Bradford in 1921, which he believes were the first of the type to be built. From these had sprung the present vehicles which had made the trolley omnibus the most serious rival of the tramcar for all town traffic.

* Extracts from a paper read at a London meeting of the Institute of Transport on February 19, and to be repeated before the Leeds and District Section on February 28.

Digitized by Google

OMNIBUS AND COACH SECTION

CONFERENCE ON TRAFFIC ACCIDENTS.

LONDON CORONERS AND PROTECTION OF TRAMWAY PASSENGERS.

Delegates from local authorities and from organisations representing users of the highways, together with representatives of the Home Office, the Ministry of Health, and the Board of Education, on January 14 and 15 attended a conference called by the Ministry of Transport to consider what steps could be taken to reduce the number of traffic accidents. This is the second conference that has been held on the suggestion of the London and Home Counties Traffic Advisory Committee. It was held at the Institution of Civil Engineers, Westminster, and was presided over on the first day by the Minister of Transport, Mr. H. Morrison.

In his opening remarks the Minister said that street accidents were the subject of much anxiety. He emphasised the importance of the work that was being done to educate children in regard to traffic dangers, and said he hoped that the Road Traffic Bill would become law this session. The Bill had many safety aspects, and would do much to enable further steps to be taken for the prevention of accidents. Especially important was the provision enabling the Minister of Transport to publish a code of road conduct.

DRIVING TEST AND MEDICAL EXAMINATION.

Speaking on a proposal that a definite test of skill and capacity should be made a qualification for obtaining a driver's licence, Mr. Oddie, of the London Coroners' Association, said experience showed that trained drivers had fewest accidents. The object in view might be achieved if applicants had to produce evidence in the nature of a certificate that they had had some training.

Dr. D. A. Cole, of the National Safety First Association, said the medical profession felt that something more was wanted than the proposed declaration as to physical fitness. Each driver should pass a medical test.

Sir Henry Maybury (chairman of the London and Home Counties Traffic Advisory Committee) said that his committee had come to the conclusion that no test would be worth the trouble and irritation it would cause. There were over two million holders of driving licences. Before it would be possible to say that those people were fit to be entrusted with a vehicle it would be necessary to test them in ordinary and extreme traffic conditions. The committee also considered that medical tests were impracticable. They unanimously reached the conclusion that the best provision was the declaration of fitness proposed in the Bill now before Parliament.

The motion was not agreed to, and the same fate met a motion calling for a medical certificate.

VARIOUS RECOMMENDATIONS.

A proposal by the Coroners' Association was adopted for crossing places to be defined, on roads having tramways and refuges, at such places as might be agreed on by the Ministry of Transport in conjunction with the Commissioner of Police. Approval was expressed of proposals by Westminster City Council to increase the number of crossing-places, such places to be indicated by double white lines, these lines and any other lateral white lines to be deemed traffic stop lines beyond which vehicles should not be driven if the traffic was held up for pedestrians to pass. Promiscuous and careless crossing at such places to be forbidden.

A resolution was adopted urging that subways should be constructed at dangerous junctions and when important new roads were laid out, but a proposal that pedestrians should be compelled to use subways was lost. Approval was given to a resolution, which Sir Henry Maybury seconded, calling for improved and more uniform systems of street lighting. On the subject of the education of road users, local authorities were appealed to for subscriptions to the National Safety First Association. A motion for augmenting the regular police by an auxiliary force trained in traffic control was rejected after Mr. A. L. Dean, of the Home Office, had stated that a conference of county councils had produced little support for the proposal.

THE PASSING OF STATIONARY TRAMCARS.

On behalf of the London County Coroners' Association, Mr. A. D. Cowburn proposed that the practice of passing stationary tramcars on the near side be forbidden.

Mr. C. J. Spencer, general manager of the London company tramways, was of the opinion that the peculiar traffic conditions of London made the proposal undesirable. The companies with which he was connected were experimenting with various devices designed to secure safety, including a " stop " light at the end of a car to warn vehicles of impending stops. A possible helpful idea might be found in reducing the number of stopping places and providing a safety zone for pedestrians at the principal stops.

A representative of the London County Council supported the proposal.

Mr. F. L. D. Elliot, an Assistant Commissioner of the Metropolitan Police, said that they looked with peculiar seriousness on any case where a driver tried to cut in between the kerb and a tramcar when it was loading or unloading passengers. There were, however, objections to a regulation such as that proposed.

By 51 votes to 38 the motion was lost.

LONDON AND SPEED LIMITS.

On the Wednesday Mr. A. Ponsonby, Parliamentary Secretary to the Ministry of Transport, presided. By 72 votes to 40 the conference adopted a motion urging that speed limits should be retained for both inner and outer London. The mover was Mr. Oddie, on behalf of the London Coroners' Association. The Chairman explained that the Ministry's object in proposing removal was to induce drivers to pay less attention to the speedometer and more to careful driving and the road.

It was agreed that in the interest of public health adequate ventilation should be provided in tunnels and garages where motor exhaust gases were likely to accumulate. The Chairman mentioned that the matter was being investigated by the Ministry of Transport, who had sent to New York to inquire into the system of ventilation in the Hudson River tunnel.

The conference referred to the Ministry of Transport a motion, on behalf of the Cab Proprietors' Council, that when several omnibuses were stationary at a recognised stopping-place, no omnibus should be allowed to pull out before those in front had moved off.

It was recommended to the Ministry that pedal cyclists should carry a rear light instead of a reflector, and that consideration should be given to the provision of separate tracks for pedal cycles. These two recommendations were moved by Mr. C. J. Spencer on behalf of the London General Omnibus Company and the company tramways of the Metropolis.

RAILWAY ULTIMATUM TO AGENTS.

Agencies for the sale of railway tickets have received a notification from the railway companies that they will be prohibited from selling tickets for motor coach trips, except in the case of companies or owners approved by the railway groups. The prohibitions in full are as follow :—

No agent may issue tickets for purely road tours unless the road service is performed by an approved road transport firm.

Local sight-seeing tours around London, embracing Stoke Poges Windsor, and Hampton Court, must be submitted to the railways for consideration.

Agents must not book organised tours to the Shakespeare country or any similar tour, as these are competitive with existing railway tours.

Day motor trips to race meetings from London and provincial towns are prohibited.

Casual picnic parties are only allowed when railway-owned or controlled road vehicles are not available.

The companies refused to accede to a proposal by the agents that the latter should be allowed to sell coach tickets when these were asked for, provided the agents did not advertise the services.

THE KARRIER-CLOUGH TROLLEY OMNIBUS.

A useful illustrated booklet has been issued by Clough, Smith & Co., Ltd., 36, Victoria Street, London, S.W.1, which epitomises the results of the wide experience of this firm in the trolley omnibus systems. The firm has for some years specialised in the installation of such systems including the overhead equipment, feeder cables, car sheds, etc., and the supply of the Karrier-Clough trolley omnibus. Examples of their work are to be seen at Doncaster, Darlington, Chesterfield, Keighley and elsewhere.

A very successful feature of their activities is the Karrier-Clough six-wheel low-loading trolley omnibus, which is the outcome of their many years' experience. This attractive and comfortable vehicle carries up to 64 passengers, and its advantages as set forth by the makers are deserving of careful attention where the replacement or extension of a tramway is under consideration.

Digitized by Google

OMNIBUS AND COACH SECTION

THE CO-ORDINATION OF TRANSPORT.

SOME PROBLEMS REVIEWED BY MR. ASHTON DAVIES.

Before the Institute of Transport on January 13, Mr. Ashton Davies, O.B.E., general superintendent (passenger, commercial) of the London, Midland and Scottish Railway, read a paper entitled "The Co-ordination of Transport." Sir Josiah Stamp, the President, occupied the chair.

Referring to the first co-ordination scheme effected between the L.M.S. and the L.N.E. Railways and Sheffield Corporation, Mr. Davies said that by securing efficiency and proportioning the services to the real demand, a true co-ordination had been achieved of which the advantages were very apparent. After adverting to the extensive arrangements completed with company omnibus owners, Mr. Davies said the arrangements would definitely tend towards the creation of a controlled monopoly in the sense recommended by the Royal Commission on Transport.

NEW ANGLE OF CO-OPERATION.

Co-ordination in practice must lie largely in the revision of the existing arrangements in local detail, and the whole of the workings would require to be reviewed from the new angle of co-operation. At the earliest opportunity the dead wood of both railway and road organisations must be pruned away. Any mileage in excess of traffic requirements, where the superfluity had been occasioned by competition must go. Opportunities for economising in mileage would arise more frequently on the railways than on the roads, particularly on branch lines. Facilities for exchange of traffic between railway and road transport would be created. Where circumstances admitted, central railway stations would tend to be real traffic centres from which journeys could be made by rail or road, and changes effected from one to the other with least difficulty.

The question would arise of the advantages of putting on to long-distance trains traffic which might otherwise be conveyed by omnibus or coach at little or no margin of profit, having regard to the cost of the road mileage. He related an instance in which thirty passengers were expected to join a rail excursion if a road vehicle were run to connect with the train. Thereupon a through-booking was announced, with such effect that the traffic was built up to the extent justifying a special train from the branch line station serving the village.

In another case a road operator found it to his advantage to influence the traffic to a guaranteed train, which he advertised and filled. There were long stretches of many long-distance tours which were best accomplished with a greater speed than road travel would permit and on which restaurant carriages and lavatories were an important advantage. On the other hand there were sections which for the appreciation of scenery could best be performed by road. The use of the railway by return omnibus and coach passengers would in some cases solve the difficulty of the bunching of traffic at night or at holiday and peak periods. To his knowledge more people had been induced to travel by omnibus on a scenic route to a pleasure resort by knowing they could use their tickets to return by rail.

THE DIFFICULTY OF ECONOMIC INEQUALITIES.

In the case of residential travel into the cities, where each vehicle tended to add to congestion, there would be opportunity for the omnibus services to transport passengers between selected suburban stations and the areas around, the railway providing quick transit from those stations to and from the city termini. This principle would tend to apply by railway traffic now picked up and set down at small intermediate stations being left for conveyance by omnibus to a neighbouring place of greater importance, there to join the railway. Such traffic would increase the omnibus receipts while the railways would benefit in that trains could be accelerated owing to the elimination of intermediate stops, affording a freer movement on the main lines.

A problem to be settled was how to ensure that capital was not expended on the provision of transport in excess of the requirements. If traffic was taken from the railway and passed along the road there was an injury to a public as well as a private interest. If, further, by reason of that increased use of the road, additional capital was spent upon the widening or maintenance of the road, a double injury was caused for which the community some time would foot the bill. Co-ordination could not be complete until the economic inequalities between railway and road transport could be removed or ameliorated in order that traffic should not be attracted to the roads solely by reason of cheapness. The present position really amounted to this. By utilising the highways, traffic might be conveyed at but little more than the working expense, whilst the same traffic if passing along the railway required to do so at a charge sufficient to cover the working expenses plus full maintenance of the permanent way plus the remuneration of the whole of the capital employed.

The PRESIDENT, opening the discussion, said that if the 119 railway companies of pre-war days had not been grouped into four companies the road competition of the post-war period would have forced many of them into bankruptcy. There now appeared to be the possibility of an adequate system of transport from any one point in the country to any other. The public would judge its success, particularly on the passenger side, by (1) convenience and accuracy of scheduled time, so that the interruptions in a journey by rail and road should not be too considerable; (2) facilities for through-bookings, so that some of the annoyance of additional bookings might be avoided; and (3) convenience of seating arrangements.

MR. R. J. HOWLEY (Tilling and British Automobile Traction) mentioned that in his own little sphere the omnibus and tramway were co-ordinated at an early stage. The result was that the tramway, instead of losing its capital and being put out of business, had by co-ordination maintained a good business, and the railway companies had recognised them as being efficient road transport operators. The question of the competition on the road of private users was one of the great difficulties in the way of possible co-ordination. If road fares were increased the traffic might be driven on to the small cars.

HOW BIRMINGHAM GAINED CO-ORDINATION.

Mr. O. Cecil Power, traffic manager of the Birmingham and Midland Omnibus Co., in an address to the Rotary Club, described the manner in which co-ordination was effected between the Birmingham Corporation transport services and those of the company. In 1914 the Corporation decided that they would like to own all passenger transport operating within the city, and they acquired from the company all such services, thirty double-deck omnibuses and the Tennant Street garage.

The agreement provided that the Corporation should not compete outside the city with the company and would afford facilities for the company's omnibuses to run in and out of the city wherever traffic warranted such an arrangement. The company, on its side, agreed not to compete inside the city with the Corporation tramway or omnibus services. It undertook that on outward journeys it would charge, as a minimum, double the maximum tramcar or Corporation omnibus fare to the boundary, whilst on inward journeys it would not pick up passengers after arriving at the city boundaries.

The inward journey embargo was lifted during the war owing to the reduced tramway services, and arrangements were made whereby the company picked up passengers whenever there was room in the omnibuses, but charged double fare over each stage, paying half the proceeds to the Corporation and using Corporation tickets, way bills, etc.

It had been stated that the Corporation had dealt unfairly with the company in this matter, but there was no question of unfair dealing. They entered into agreements and received £30,000. They signed the agreements; they knew what they were signing, and they considered the agreements fair and in the interests of the travelling community. Those agreements had been carried out both in the spirit and in the letter. As a result of certain subsidiary agreements the company were to-day paying the Corporation £7,000 a year for the running powers they possessed on the Walsall route, £4,000 a year for the new Oscott route, and over £1,000 a year for the New Wolverhampton Road.

Writing in the "Gazette" of the Birmingham Corporation Tramways and Omnibus undertaking on the work and worth of the late Mr. Alfred Baker, for 26 years manager of the undertaking, Alderman A. G. Ellaway, J.P., chairman of the committee, recounts that in 1914 Mr. Baker urged that if Birmingham wished to retain the control of public transport within its boundaries the Corporation ought at once to buy out the interest of the Midland Red Omnibus Co. "The City Council," says Ald. Ellaway, "accepted his advice, and with what results! We have only to consider our present omnibus undertaking, the largest municipal undertaking in the country, and compare our position with that of many other towns where unrestricted competition has proved so disastrous. The city owes its happier experience to Mr. Baker's foresight."

Digitized by Google

OMNIBUS AND COACH SECTION

A.E.C. 95 H.P. "REGENT" FOR NEWCASTLE.

Newcastle-on-Tyne transport department is the latest municipal user of several of the new "Regent" model of the Associated Equipment Company. This 95 H.P. machine was among the vehicles described and illustrated in THE TRAMWAY AND RAILWAY WORLD of November 21 last on the occasion of a private view of the company's 1930 productions at their works at Southall, Middlesex. It had, of course, already been tried out by a number of transport undertakings, and as an indication of the merits of the 95 H.P. six-cylinder engine and chassis it may be mentioned that they are being used to replace, during 1930, the whole of the "K" type omnibuses of the London General Omnibus Company.

In the six-wheel form the "Regent" has for nearly a year been giving Londoners on the Victoria-Cricklewood route a foretaste of the luxury travel which they will enjoy when existing vehicles are replaced by the new omnibuses, to be known as the "LT" class. The "Regent" engine gives smooth and vibrationless running and rapid acceleration. At 1,000 R.P.M. it reaches 48 B.H.P., and at 2,500 R.P.M. 95 B.H.P. Dominant features of the engine are its strength and robustness, while its weight is only 9 cwt. Overhead valves needing very little attention are used, automatic ignition advance is provided, and all wearing parts have extremely large bearing surfaces. The stout and rigid 7-bearing crankshaft has bearings $2\frac{3}{4}$ in. diameter. The cylinder head is easily removed. There are die-cast split skirt aluminium pistons.

In its double-deck four-wheel form, as supplied to Newcastle Corporation, the "Regent" omnibus provides seats for 50 passengers. An improved type of semi-bucket seats is installed, upholstered in the well-known L.E.R. pattern moquette. Ordinary ventilation is by louvres over the tops of the drop windows, and on fine days any amount of fresh air is available, for the lower saloon windows include on each side two drop windows operated by Hobson's light-weight winders. The upper deck has four sliding windows of the Beclawat pattern. The driver's cab by the side of the engine is fully enclosed and has a coach type entrance door containing a divided window with sliding glass in the lower portion. All rails are covered in labour-saving material.

A.E.C. 95 H.P. "Regent" Omnibus in the Service of Newcastle Corporation.

OMNIBUS SERVICES AT CHESTER.

On February 15, Chester tramway services will be discontinued and the place of the cars will be taken by omnibuses. Commenting on the change of system a correspondent of the *Manchester Guardian* says that Chester is a "bridge" town on the highway to Wales and the West, and a large volume of through traffic has to pass through narrow streets. In such circumstances the tramways were thought to add to the congestion, but it is not anticipated that the substitution of omnibuses will do much to relieve the congestion. The only way to effect much improvement will be the construction of a by-pass road.

Another reason for the change was that the Corporation thought that the cost of track reconstruction was prohibitive. It is estimated that the $6\frac{1}{2}$ miles of single track would require an expenditure of £60,000. The eighteen cars would soon need replacement, and to avoid this heavy expenditure the Council decided to expend about £30,000 in providing six double-deck 60-seat omnibuses and ten single-deck 30-seat omnibuses. By an Act obtained last year the Corporation is empowered to run omnibuses in an area extending $3\frac{1}{2}$ miles from the centre of the city and to make working agreements with other operators within a radius of eleven miles from the centre.

At present the Council proposes to run omnibuses only half-a-mile beyond the tramway termini. The routes served will be increased to about nine miles, and it is estimated that the vehicles will run 600,000 omnibus miles annually. The tramcar mileage was about 345,000. The capital expenditure on the tramways stands at £85,934. Of this sum £43,827 represents unpaid debt on which there is annually interest and sinking fund charge of about £4,200, which will be payable for the next thirteen years. The Corporation estimate that the omnibuses will earn sufficient to meet this charge, to pay interest and sinking fund on the capital outlay for the sixteen omnibuses (about £30,000) based on an assumed life of eight years per omnibus, meet working expenses and yield a small surplus. The eighteen tramcars have been sold for about £540.

Digitized by Google

OMNIBUS AND COACH SECTION

OMNIBUS AND COACH SERVICES.

MUNICIPAL.

CHANGE-OVER AT BURTON.—Single-deck petrol omnibuses by Guy Motors, Ltd., have replaced the tramcars at Burton-on-Trent. The drivers collect the fares as the passengers enter at the front.

DOUBLE-DECKERS FOR NORTHERN IRELAND.—The Ministry for Home Affairs has agreed, as an experiment, to license double-deck omnibuses. A number will shortly be introduced by Belfast tramways department.

LEEDS PARLIAMENTARY BILL DEFEAT.—By 32,794 votes to 11,248, the ratepayers of Leeds have rejected the clause in the Corporation Bill which asked for powers to extend the omnibus services by running outside the city.

HAMILTON TO INVESTIGATE.—On the motion of Bailie Cassells, Hamilton Town Council is to consider the question of obtaining powers for a municipal omnibus service, either separately or in conjunction with other local authorities in Lanarkshire.

A NEW BRADFORD SERVICE.—Bradford tramways department proposes shortly to make an effort, by means of an omnibus service, to check the loss of receipts on the Baildon Bridge section which has been caused by omnibus competition with the tramways.

NORTHAMPTON PROPOSALS.—In preference to reconstructing the tramway track to Kingsley, Mr. J. F. Cameron, the general manager of the Transport department, has advised the use of six double-deck six-wheel omnibuses. The Tramways Committee has adopted the recommendation and has also authorised the manager to obtain tenders for the supply of eight single-deck vehicles.

A BIRMINGHAM SUBSTITUTION.—On February 5 the Bolton Road tramway service of Birmingham Corporation was discontinued and motor omnibuses were substituted for the tramways. In May last the City Council decided to abandon both the Bolton Road and Hagley routes, as the tracks were in need of reconstruction, and it was estimated that when this was done the routes could not be operated except at a loss.

BRITISH OMNIBUSES FOR OVERSEAS.—A telegram to the *Daily Mail* from Johannesburg states that the City Council is buying three British motor omnibus chassis at £812 each. The British tender was nearly £200 higher than the lowest tender from the United States, but the councillors consider that English omnibuses have proved their worth. Cape Town Council has also ordered five omnibuses from a British firm.

OMNIBUSES FOR A LORD MAYOR'S GUESTS.—Corporation omnibuses were used to convey the guests of the Lord Mayor of Leicester to their homes after a reception at Mountford Hall. The Lord Mayor wished to save his guests the necessity for leaving early to catch the ordinary trains and omnibuses, and the Tramways Committee arranged for a fleet of omnibuses to wait at the entrance of the Hall. The fare for all routes was 6d.

FURTHER MANCHESTER DEVELOPMENTS.—In obtaining the sanction of the Tramways Committee to inviting tenders for supplying thirty new chassis, Mr. R. Stuart Pilcher, the general manager, said that the single-deck bodies could be provided in the Corporation workshops. Fourteen of the vehicles would be required on services which the North-Western Road Car Co. were working with the Corporation, the remainder being used for developing new routes.

STOCKTON OMNIBUS SCHEME.—In explaining to a meeting of ratepayers the Corporation Bill, the Mayor said the Council was advised that there was a prospect of earning under the proposed omnibus scheme a revenue sufficient to cover the interest and redemption charges which would have to be found for the unpaid balance of the tramway loan. The cost of the works contemplated under the Bill are as follow :—Discontinuance of tramways, £92,558, including £57,558 for purchase of omnibuses, £10,000 for depots, and £25,000 for reconstruction and reinstatement of roads.

IMPROVED POSITION AT CARDIFF.—Mr. W. Forbes, general manager, in his report on the working of the tramways and omnibuses for the nine months ended December 31, 1929, indicated that the department "had turned the corner." On the Gabalfa route the omnibuses did the work previously accomplished by thirteen tramcars, and there had been an increase of 29 per cent. in revenue and 22 per cent. in passengers. Adverting to the loss of £6,040 last year on two other tramway routes, Mr. Forbes suggests that a service of low height, double-deck omnibuses would effect considerable improvements.

MANCHESTER'S NEW OMNIBUSES.—Manchester Transport Committee recently inspected one of the double-deck omnibuses which are to replace single-deck tramcars on the circular route. Twelve of these new vehicles, the chassis of which have been built by Crossley Motors, Ltd., and Leyland Motors, Ltd., will be subsequently delivered. The omnibuses cost £1,750 each and seat 50 passengers—24 in the lower and 26 in the upper saloon. On the upper deck, which is designed to clear low bridges, upholstered seats are placed in pairs along a raised dais down the centre of the saloon, leaving a gangway on either side.

REDUCED FARES AT GLASGOW.—The question of the issue of omnibus season tickets has been considered by the General Purposes Sub-Committee of Glasgow Transport Committee. This Committee has adopted, by the casting vote of the chairman, Mr. P. J. Dollan, a report by Mr. L. Mackinnon, the general manager, recommending that omnibus fares over 2d. be reduced, and that the maximum fare within the city be 3½d. The general manager expressed the opinion that any concession should be given to all passengers alike, and not only to those who could purchase season tickets. The new scale of fares comes into operation in March.

EXPRESS SERVICE FOR BOURNEMOUTH.—Mr. I. Bulfin, engineer and general manager of the Corporation Tramways, submitted to the Tramways Committee a detailed report on the express omnibus service which is to be inaugurated. Its purpose is to meet the complaints of tramway passengers in outlying districts that a certain amount of time was wasted at stops. At Manchester, where an express system is in use, the omnibuses only stop at the main fare stages of the tramways, and the fare is double the amount for the same distance on the tramcars. There will be a minimum fare of 1½d., and no special fares will be conceded. The service will be provided by twelve 32-seat low-loading omnibuses.

COMPANY.

CITY COAT-OF-ARMS FOR A COMPANY.—Londonderry Council has granted permission to Catherwood, Ltd., to use the city coat-of-arms on the city service omnibuses.

TYNESIDE TRAMWAYS CO.—At a meeting of the Tyneside Tramways & Tramroads Co. sanction was given to raising a mortgage not exceeding £26,370 for the purchase of omnibuses to take the place of the tramways.

GLASGOW-GREENOCK-GOUROCK SERVICE.—The L.M.S. Railway Company, in conjunction with the Greenock Motor Services, has started a new omnibus service with routes between Glasgow, Greenock and Gourock. The vehicles comprise 32-seat bodies on Albion chassis.

FEW ACCIDENTS IN DEVONSHIRE.—During 1929 the Devon General Omnibus & Touring Co. carried over ten million passengers, with only four slight cases of injury. Mr. David Campbell, the manager, states that co-operative working is about to be entered upon with the Great Western and Southern Railways.

SEVENOAKS-LONDON COMPETITION.—The Safe Way Coach Co. has started a service between Sevenoaks and London at a return fare of 2s. 6d., as compared with 5s. 10d. on the railway. An effort is also being made to promote theatre traffic at a return fare of 1s. 9d. Up to the present a fare of 4s. return has been charged by old-established coach firms on this route.

MUNICIPAL PARK AND STATION.—Abergavenny Council is to erect a station in the centre of the town, which will be leased at £100 per annum, plus rates, to the several omnibus companies, who will also collect the tolls from cars using the adjoining parking ground. The companies will retain one-third of the tolls, the remaining two-thirds going to the Corporation.

SPARE LICENCES FOR PEAK TRAFFIC.—Swansea Watch Committee has granted licences to the South Wales Transport Co. for 24 vehicles, which are to be used to deal with overcrowding at peak periods, and for certain extensions of existing services. The company has undertaken that none of the vehicles will be used upon any service except with the consent of the chief constable.

CLEANLINESS OF VEHICLES.—Blyth Licensing Committee has informed several owners of omnibuses that their vehicles must be kept in a proper state of cleanliness, and that the condition of the interiors will be taken into consideration when licences are next applied for. The Health department has been instructed to inspect vehicles reported to be in an unclean state.

COMPETITION AND FARES.—Responding to a request by Folkestone Town Council, the East Kent Road Car Co. has reintroduced penny stages, the previous minimum having been 1½d. The 1d. stage was relinquished in November, 1925, in consequence of the Council

Digitized by Google

OMNIBUS AND COACH SECTION

licensing so many competitors. The company states that the Council's stricter attitude towards licensing alone enables them to reintroduce penny stages.

DAIMLER CHASSIS FOR LONDON OMNIBUS OPERATORS.—The Red Line Omnibus Co. and other London independent owners are placing in service eleven double-deck omnibuses, comprising the Daimler C.F.6 chassis, with bodies by Birch Bros. Ltd. The bodies will seat 56 passengers. The forward position of the driver has a two-piece wind-screen with a wiper on the hinged half. The near-side is enclosed by a full glass panel; the off-side has a half-panel.

UNLICENSED VEHICLES IN NORWICH.—At a meeting of Norwich Town Council, Councillor C. P. Clissitt said that in consequence of the refusal of many applications for licences, there were innumerable unlicensed omnibuses running in Norwich, over which the chief constable had no control at all. Councillor W. A. Linton, of the Watch Committee, expressed the hope that the matter would be taken out of the Committee's hands, as proposed by the Royal Commission on Transport.

RAILWAY LICENCES NOT TAKEN UP.—When the L.N.E.R. applied to Hull and District Licensing Advisory Committee for renewal of licences for omnibuses to run between Hull, Doncaster and Leeds, it was stated that the licences had never been taken up by the company. Their excuse was that they have been negotiating with several large companies with the object of co-ordinating. The committee decided to inform the company that the renewals should be applied for when they are in a position to operate the services.

CARDIFF CORPORATION OVERRULED.—As the result of an inquiry into the appeal of Imperial Motors against the suspension of their licences for the Cardiff-Pontypridd-Aberdare service, the Ministry of Transport has advised the Corporation to grant the company's request for six licences. The Corporation had alleged breach of conditions, including the running of additional omnibuses. On this ground they suspended the firm's four licences. The Ministry also considered that the stopping of the services was too harsh a penalty, even if the offences had been committed, and they are of opinion that extra licences to those normally required should be issued to permit extra services to be run when required on special occasions.

LONG-DISTANCE.

SERVICES FROM SOUTH SHIELDS.—The Watch Committee has granted Mr. S. Hassen licences for two omnibuses to ply from South Shields to Liverpool and London.

RIVALRY IN KENT.—At a fare of 3s. 10d. return, Redcar Services, Tunbridge Wells, has inaugurated a rival service to London, four times daily. The distance is about seventy miles.

SUPER COACHES FOR THE "MIDLAND RED."—Mr. O. C. Power, traffic manager of the Birmingham & Midland Omnibus Co., has informed the Birmingham Rotary Club that the company is building 200 super coaches for long-distance services this year.

MANCHESTER-EDINBURGH PROPOSAL.—Bolton Watch Committee has not granted the application of the Scottish Motor Traction Co. for licences for twelve omnibuses to be run in conjunction with the Ribble Motor Services between Edinburgh, Carlisle, Preston, Bolton and Manchester.

MANY NEW SERVICES TO BE STARTED.—Seventy-eight applications, mostly from outside owners, for new services to the principal towns in Wales, and to Birmingham, Newcastle and London, are being considered by Neath Licensing Committee. New applications relating to forty-four local services and the renewal of eighty-four licences have also been received.

LONDON-WINDSOR EXPRESS SERVICE.—The Premier Omnibus Co., which hitherto has operated only double-deck vehicles in London, has started an express coach service (named the Premier Line) between Bush House, Aldwych, and Windsor. The vehicles used comprise Leyland "Titan" chassis with 26-seat Duple bodies. The fares are 2s. 6d. single and 3s. 6d. return.

A BARNSLEY STIPULATION.—Subject to the condition that no passengers can book to or from Barnsley from or to any point within ten miles of the town, Barnsley Watch Committee has granted a licence to Hall Bros., of Newcastle, for a service between South Shields and Cardiff, and to Underwood Express Services for a service between Leeds and London, in both cases via Barnsley.

NEW SERVICES THROUGH WALES.—Applications to ply for hire on a Swansea-London route have been dealt with as follow by Swansea Watch Committee:—Granted: Queen Line Coaches, London (four licences); South Wales Transport Co. (two); A. T. Morse Automobile Co., Cardiff (two). Refused: Great Western Co., London; F. G. Llewellyn, Swansea; E. Thomas, London; J. E. Castle, Biddenden, Kent; Black and White Motorways, London. The Committee also refused applications from A. T. Morse Automobile Co. for services to Bournemouth and Birmingham; British Road Services, for services from Newcastle to Cardiff and Swansea; and Imperial Motor Co., of Aberdare, for services between Cardiff and Aberdare.

SOME RECENT ORDERS.

LANCASTER CORPORATION is purchasing four omnibuses by Daimler Motors, Ltd.

WIGAN CORPORATION is purchasing three "Titan" omnibuses from Leyland Motors, Ltd.

SHOREDITCH COUNCIL has purchased a 5-ton tipping wagon from the Albion Motor Car Co., Ltd.

W. & G. DU CROS have a contract from Ryde Town Council to supply a 2-ton refuse-collecting vehicle.

ACCRINGTON TRAMWAYS COMMITTEE has advised the purchase of six omnibuses from Leyland Motors, Ltd.

SOUTHWARK BOROUGH COUNCIL has purchased a low-loading refuse-collection vehicle from Dennis Bros., Ltd.

GLOUCESTER COUNCIL has placed a repeat order with the Vulcan Motor and Engineering Co. for a 26-seat omnibus.

BOLTON TRAMWAYS COMMITTEE has authorised the purchase of five additional Titan double-deck omnibuses from Leyland Motors, Ltd.

LEYLAND MOTORS, LTD., have a contract to supply 17 double-deck and six single-deck omnibuses to Birkenhead Corporation Tramways.

SURREY COUNTY COUNCIL Highways Committee has accepted the tender of Leyland Motors, Ltd., at £1,795 for supplying a 10-ton petrol lorry.

CROSSLEY MOTORS, LTD., have received an order from the Canadian Government for sixteen six-wheel chassis with 20–60 H.P. four-cylinder engines.

MERTHYR OMNIBUS COMMITTEE has recommended the acceptance of the tender of the Bristol Tramways & Carriage Co., Ltd., for four omnibuses at £1,288 each.

CROYDON CORPORATION HOSPITALS COMMITTEE has recommended the acceptance of the tender of Morris Commercial Motors, Ltd., for the supply of a motor omnibus at £460.

B.E.N. PATENTS, LTD., are to instal car-washing and disinfecting plant at the ambulance stations of the Metropolitan Asylums Board. The amount of their tender was £1,117.

THE METROPOLITAN ASYLUMS BOARD has recommended the acceptance of the tender of the British Goodrich Rubber Co., Ltd., for a portion of their requirements of tyre covers and tubes.

BIRMINGHAM TRAMWAYS COMMITTEE has accepted the tender of the Brush Electrical Engineering Co., Ltd., for the supply of fifteen omnibus bodies, and of Guy Motors, Ltd., for ten single-deck omnibuses.

HALLEY MOTORS, LTD., are supplying, through their Dartford agent, five 2-ton W.20-type chassis equipped with three-way steel-lined tipping bodies, operated by Bromilow & Edwards hydraulic gear, to Kent County Council.

LIVERPOOL TRAMWAYS COMMITTEE has placed contracts for the supply and maintenance of motor omnibus tyres for the twelve months ending December 31, 1930, with Henley's Tyre & Rubber Co., Ltd., and the Dunlop Rubber Co., Ltd.

OMNIBUSES WITH TWIN ENCLOSED STAIRCASES.—Wallasey Tramways Committee has decided to purchase three double-deck Leyland motor omnibuses, with twin enclosed staircases, at a cost of £1,746 each, and three new Daimler vehicles of a similar type, at a cost of £1,800 each.

THE LONDON COUNTY COUNCIL has made a contract to the value of £3,600 with the United Services Transport Co., Ltd., for the supply on hire of petrol lorries for the tramway department for one year. Thirty-seven firms were invited to submit tenders.

EASTBOURNE OMNIBUS COMMITTEE has placed an order with Leyland Motors, Ltd., for six double-deck top-covered omnibuses at the cost of about £1,700 each. The Committee has accepted the tender of the Anglo-American Oil Company for the supply of petrol at 1s. 0½d. per gallon.

RICHARD GARRETT & SONS, LTD., have the following contracts:—Four rigid six-wheel wagons, the Marley Co., Ltd., and others for E. Smith & Sons, Ltd., Brentford, and A. Rudge & Sons, Chiswick; two rigid six-wheel wagons each for C. Kirby, Hanwell, and A. Manchester, Charlton; two rigid six-wheel side tippers for W. Woodbridge, Ltd., Queen Anne's Gate.

Digitized by Google

OMNIBUS AND COACH SECTION

MANCHESTER TRAMWAYS COMMITTEE has accepted the tender of Crossley Motors, Ltd., for the supply of a Crossley motor car with landaulette body, and of Halley Motors, Ltd., for the supply of two petrol motor tipping wagons. The Committee has also obtained tenders for the supply of 20 omnibus chassis and 15 single-deck omnibus bodies. Fifteen other single-deck bodies will be built at the Corporation's Hyde Road car works.

JOHN I. THORNYCROFT & CO., LTD., are filling the following, among other, orders:—Sixteen omnibus chassis for the Argentine North-Eastern Railway; four 3-ton six-wheelers for Allmey & Leyfield, Ltd., Liverpool; nineteen 2-ton chassis for the L. & N. E. Railway; ten 20-seat omnibus chassis for the China General Omnibus Co., Shanghai; ten 32-seat omnibus chassis for the Buenos Aires Great Southern Railway; eight 30-cwt. chassis for the New Zealand Post & Telegraph department; seven 32-seat omnibus chassis for Goodfellows Motor Services, and twelve B.C. forward omnibuses for Bournemouth Corporation Tramways.

THE BRISTOL TRAMWAYS & CARRIAGE CO., LTD., have received the following orders:—Norwich Electric Tramways Co., Ltd., three "Bristol" four-cylinder, four-wheel light passenger chassis; Merthyr Tydfil Corporation, four "Bristol" superbuses (type L.5 dual-purpose bodies); Newcastle (Staffs) Motor Co., Ltd., "Bristol" four-cylinder, four-wheel light passenger chassis. Each of the above orders is a "repeat." Among other orders are one "Bristol" superbus on four-cylinder chassis for Garlick, Burrell & Edwards, Liverpool, a "Bristol" 30-seat coach on four-cylinder chassis and a 30-seat coach on six-cylinder chassis for A. & R. Graham, Kirkintilloch, three each of the "Bristol" light passenger chassis, Rotherham and Doncaster Tramways departments.

MOTOR TRAFFIC NOTES.

AN EXPERIMENT IN PARKING.—For some time past motor cars have been permitted to use only one side of High Street, Worcester, when making a stop. To an inquiry by Scotland Yard as to the success of the system, the chief constable has replied that it works satisfactorily.

LIGHTING OF MOTOR VEHICLES.—In an address to Worcester Rotary Club, Mr. O. C. Power, traffic manager of the Birmingham and Midland Omnibus Company, supported the recommendation that mechanically-propelled vehicles should be equipped with dip and swivel headlights. He urged that manufacturers should be compelled to supply them as component parts of their vehicles.

ECONOMY OF AUTOMATIC SIGNALS.—At the junction of the Cross and Foregate, Worcester, four two-way traffic signals are to be erected at a cost of £196. The city electrical engineer estimated that the cost of working for a daily period of 16 hours, and of the renewal of lamps, will be £36 per annum. The Watch Committee reported that the average cost of working a traffic point for a daily period of eight hours is £250 per annum.

BIRMINGHAM TRAFFIC CONTROL COMMITTEE.—Birmingham Corporation has decided to form a Traffic Control Committee to deal with the regulation and distribution of vehicular traffic, the alteration or abandonment of existing routes for tramcars, omnibuses and trolley vehicles and the suggestion of new or alternative routes, and generally with matters the object of which is the improvement of traffic facilities in the city.

HIGHWAYS COMMITTEE OF THE ROYAL AUTOMOBILE CLUB.—Sir Henry Maybury, late of the Ministry of Transport, has become the chairman of a new committee of the Royal Automobile Club to be known as the Highways Committee. The committee will deal with all matters connected with the roads, and will carry out experiments and demonstrations. As opportunities offer, the committee will lay its views before Government departments, police authorities, and county and other council surveyors.

PROPOSED CENTRAL COACH STATION FOR MANCHESTER.—A proposal is being considered to establish a central office in Manchester to act as a central station for all motor coaches for the convenience of passengers, and incidentally to relieve traffic congestion. The suggestion has been made by the Trade Administration Committee of the Manchester Transport Association and Commercial Motor Users' Association. The project, it is felt, would assist the co-ordination of services and render the regulation of omnibus traffic in the city more easy.

CAR AND DRIVING LICENCES EVERYWHERE INCREASING.—Reports of one northern and one southern county council may be quoted to show the extent of the increase in 1929 of motor vehicle and drivers' licences. The West Riding Council issued 121,036 vehicle licences as against 115,512 the previous year. Drivers' licences totalled 79,440, compared with 76,168. Essex records 29,530 annual and 96,167 quarterly licences, as compared with 26,361 annual and 69,162 quarterly the previous year. The number of driving licences was 76,441, as against 63,174.

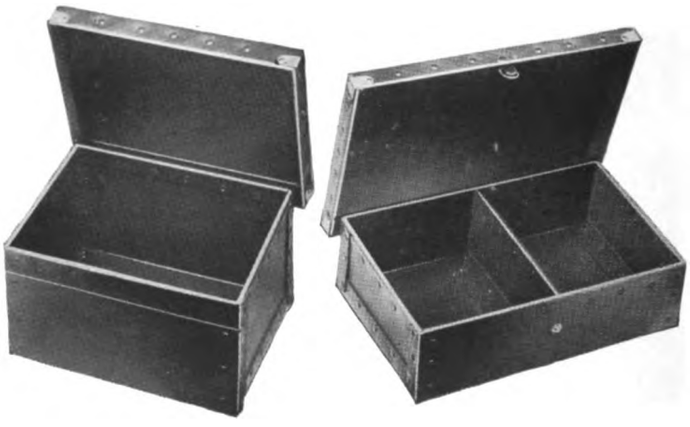
SOLVING BLACKPOOL'S COACH STATION PROBLEM.—Blackpool Corporation is carrying out a scheme devised by Mr. Charles Furness, general manager of the tramways and omnibuses, for dealing with the thousand or more coaches and other vehicles that arrive each day during the season. A large omnibus station is being erected near Talbot Road railway station, where every licensed vehicle will set down its passengers and then proceed to parking places until it is due to leave Blackpool. This plan will remove the trouble which visitors experience in finding the parking centres. Corporation omnibuses will also use the station.

VULCANISED FIBRE TICKET BOXES.

An entirely new type of ticket box is now being manufactured by the Diamond Fibre Co., Ltd., of 79, Knightrider Street, London, E.C.4. This is rapidly taking the place of the old familiar metal box that has hitherto been universally used by tramcar and omnibus conductors for the purpose of carrying their stock of reserve tickets and has many features in its favour.

The boxes are made from the Diamond vulcanised fibre, which is generally admitted to be the toughest resilient material known and must not be confused with the ordinary compressed fibre which is liable to break up into leaves after a comparatively short period of use. They are therefore practically indestructible, light in weight, waterproof and have many advantages over the old metal box. Every detail in the manufacture has been carefully thought out so as to ensure that the completed box will withstand the rough usage to which it is certain to be subjected, and that through a long period of service.

As will be seen from the illustrations the edges of the boxes are reinforced with a double turnover of fibre giving a perfectly smooth



surface. This not only adds to the strength of the box, but prevents any liability of injury to the user's hands, which was a frequent occurrence with the old tin boxes. A feature of the fibre boxes is that they are not cold to the touch, a matter of no little importance when one considers the conditions under which the ticket boxes have to be handled by conductors in very cold weather.

The boxes illustrated were specially made to the order of a well-known company to their own specification, and any size or shape can be produced to suit the local requirements of any tramway or omnibus undertaking. Where a large number of boxes are used and the distribution and collection to and from a number of distant points have to be arranged for, the great saving in weight is a matter of serious consideration. The maintenance of these vulcanised fibre boxes is practically nil, but in the event of their being damaged they can be repaired, and this at a remarkably small cost. The boxes are made entirely at the company's works at Maidstone, Kent, and of British material throughout.

Digitized by Google

THE
Tramway and Railway World
FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.
Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates—
FOR THE UNITED KINGDOM—Twenty-five shillings per annum.
FOR ALL PLACES ABROAD—Twenty-five shillings per annum. Postage to Canada, 6s.; to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS.

LONDON, FEBRUARY 15, 1930.

THE ROAD TRAFFIC BILL.

In less than a dozen sittings, the House of Lords passed the Road Traffic Bill and sent it to the House of Commons, where it is to be introduced by the Minister of Transport on Tuesday next. Thus far the Government has been attended by good fortune in the task of securing the endorsement of the Legislature to the view that no time should be lost in placing upon the Statute Book a measure that embodies the recommendations of the Royal Commission on Transport. It is true that the Lords deleted Part V in opposition to the wishes of the municipalities. That error will, no doubt, speedily be corrected by the Commons. Following the demand of the municipal authorities for the restoration of Part V or for the passing of the Omnibuses Bill of the Municipal Tramways and Transport Association, steps have already been taken towards ultimately placing municipal transport undertakings upon an equality with private operators of omnibuses. Upon the discussion of that provision of the Road Traffic Bill no time is likely to be lost; for the Government and the House have given an indication of their intention. On February 8, as reported in our issue of last week, the House gave a second reading to the Omnibuses Bill by a majority of 85 in a house of 321. The vote was taken after an emphatic declaration by the Minister that the Committee of the House would be instructed to reincorporate Part V of the Road Traffic Bill. Alternatively, the Government would secure that the two measures should be considered by the same committee, with instructions to amalgamate the two. In carrying out that resolve, the Government may be sure of a majority increased by Liberal support. Some other provisions of the Road Traffic Bill may create difficulties and divide party allegiance. For instance, some confusion has arisen concerning a matter in which the Minister seems to have departed from his public declarations in favour of controlled monopolies. Clause 63 had a proviso which would enable the Area Commissioners to grant a licence to any person for any route, notwithstanding that an authority or company has been given a monopoly by Act of Parliament. The peers deleted this proviso on the ground not only of injustice, but because the Bill upsets the procedure of private bill legislation. Earl Russell's defence of the proviso, namely, that it was required in order to give the Commissioners uniform control, was weakened by an assertion that monopolies could not be defended. The Earl was also emphatic in declaring that licences would not be refused to the established operators. If that contention is upheld by the Minister, it should be made clear in the wording of the clause. Other matters that are likely to be objected to on behalf of the operators of public vehicles include the limitation of employees' hours of work and the restriction of speed to 30 miles per hour.

TRAMCAR, TROLLEY AND MOTOR OMNIBUS.

ADVANTAGES AND LIMITATIONS.

Mr. R. H. Wilkinson, general manager of Bradford Corporation Tramways, on Monday evening read a paper at a London meeting of the Institute of Transport setting forth what he considered to be the advantages and limitations of tramcars, trolley and motor omnibuses. In the course of the paper the author said: It may be that in a few big cities a large capacity tramcar would be the most economical vehicle to operate. It has a large seating capacity, operates safely, is comfortable to ride in, can make headway in fog when other traffic is held up, and in frost and snow is not so liable to get out of control (although, paradoxical as it may seem, the omnibus can operate on steeper gradients than the tramcar). Its spacious platforms are useful for carrying luggage and parcels; it uses electricity obtained from local fuel and can be driven from either end, thus avoiding room necessary for turning.

The disadvantages of the tramcar are its high initial cost for permanent way or track; passengers must board and leave the car in the middle of the road (an increasingly dangerous practice and one which also causes delay to other traffic); one car breaking down or being obstructed holds up and interferes with all the service on that route. Another is that of noise, which can only be kept in reasonable bounds by maintaining the cars and the track in good condition. The points and crossings further augment this trouble, and when corrugation occurs the noise is intolerable. The tramcar also requires overhead equipment.

Admitting the lesser degree of safety of omnibus operation under certain climatic conditions, the public prefer this type of vehicle, and this requirement must be catered for or their patronage is lost. The extra speed of the omnibus is largely due to its flexibility, which enables it to overtake other vehicles, and it thus provides express service between distant points where the vehicular traffic permits. Had it to undertake the ordinary tramway duties in densely populated areas it would not be as efficient and economical as the tramcar.

The motor omnibus has the following disadvantages:—

Slow acceleration;	Emits noxious fumes;
Jerks due to gear changing;	Short life and high depreciation;
Depends on petrol supplies from abroad;	Higher operating costs;
Noisy engines and gears;	Too many complicated parts;
	Fire risk.

Advantages of the motor omnibus over other vehicles are:—

High speeds on open roads;	Good for testing a route for traffic, there being no fixed equipment;
Greater mobility;	Being self-contained, requires no outside equipment;
When broken down does not interfere with remainder of service;	Loads at kerb edge.

With regard to the trolley omnibus, it has nearly all the advantages of the tramcar and others in addition, such as: Ability to pass round an obstruction; higher average speed and increased receipts; the most silent vehicle in public service; low "all-in" costs. It has not the speed of the motor omnibus on the open road; is held up should the supply of electricity be cut off—an unusual occurrence. It cannot overtake another trolley vehicle, and requires overhead equipment like the tramcar. It is, however, a totally British product, both in construction and during its life, and derives its power from home-produced fuel. It is a valuable load to any electricity supply station and tends to cheapen the whole supply. The Bradford tramways account for electricity is approximately £90,000 per annum, or 1.113d. per unit.

The author referred to two double-deck four and six-wheel trolley omnibuses which he constructed and placed in service at Bradford in 1921, which he believes were the first of the type to be built. From these had sprung the present vehicles which had made the trolley omnibus the most serious rival of the tramcar for all town traffic.

The paper will be read again at a meeting of the Leeds and District Section of the Institute on February 28.

Night Omnibuses at Manchester.—Of the nine all-night services operated at Manchester, chiefly for the use of night workers, five are now served by omnibuses and four by tramcars. On the Oldham-road route the omnibuses have been taken off and tramcars reintroduced. The reason, it is stated, is that the people travelling were too numerous for the largest omnibus. For the same reason a tramcar is used on the West Didsbury and Rochdale-road routes.

Digitized by Google

NEXT WEEK IN THE HOUSE OF COMMONS.

PROBABLE FUSION OF ROAD TRAFFIC AND OMNIBUSES BILLS.

The coming week promises to be one of much importance to the transport industry. On Tuesday the Government hopes to take the second reading of the Road Traffic Bill in the House of Commons. On Thursday last representatives of the motorist organisations attended a meeting of members of all parties at the House of Commons to consider the Bill. It was generally agreed that some clearer definition of the expression dangerous driving was needed, and it is expected that amendments will be put down at the Committee stage to secure this.

It is not regarded as probable that the House will divide against the Bill, although the Committee stage is expected to take some weeks. After the second reading has been carried, Mr. Morrison, Minister of Transport, will move that it be an instruction to the Committee on the Bill that they have power to consolidate the Road Traffic Bill and the Omnibuses Bill. The Omnibuses Bill, which passed the second reading in the House of Commons on February 7 by a majority of 85, is almost identical with the original Part V of the Road Traffic Bill, which was deleted by the House of Lords.

Mr. Morrison has already stated that it is the intention of the Government to restore Part V practically in its original form, and, if this be done, local authorities now possessing power to run omnibuses within their boundaries will be able to expand these services outside, subject to the consent of the area traffic commissioners, for the appointment of which the Bill makes provision.

On Monday the Underground Railway Bill is down for second reading, but as it follows the Poole Harbour Bridge Bill, on which there will probably be a long discussion, it is possible that the Underground Bill will not be reached. Notice has been given of opposition to this Bill by some Labour members.

The Financial Secretary to the Treasury has stated that the application of the Underground Group for assistance under the Development (Loan Guarantees and Grants) Act in respect of various schemes, including the projected tube railway from Finsbury Park northwards, was under consideration.

LONDON CIRCULAR TRAMWAY JUNCTION.

A TRAFFIC IMPROVEMENT WHICH IS TO COST £1,913,000.

At the meeting of the London County Council on Tuesday the Improvements Committee presented a proposal for improving traffic conditions at the Elephant and Castle junction in South London, where there are six roads, each having a double track tramway.

The report first referred to a scheme prepared by the Ministry of Transport, which was estimated to cost £3,150,000 gross, including rehousing. This scheme provides a circular road, 120 ft. in width, with a carriageway of 87 ft. 6 in. A double line of tramways would be laid in the circular road, and the whole of the traffic, vehicular and tramway, would be one-way traffic circulating round the road in clockwise direction.

The committee submitted an alternative scheme, which retained road formation similar to that of the Ministry's scheme, but could be carried out at a cost of £1,913,000, including rehousing. On the understanding that the Minister of Transport would contribute 75 per cent. of the cost, the Council decided to apply to Parliament this session for powers to carry out this scheme.

TRAMWAYS AND LIGHT RAILWAYS ASSOCIATION.

An extraordinary meeting of the Tramways and Light Railways Association will be held at Caxton Hall, Caxton Street, Westminster, S.W., on Tuesday, February 18, at 2.30 p.m., when a resolution will be proposed to provide for the change in the name of the Association to the Tramways, Light Railways and Transport Association. Another resolution provides that in addition to the annual subscription of £5 5s. the companies shall pay by way of further subscription such sum as may be recommended by the Council and determined by the Association in general meeting.

The Council has accepted an invitation from the Corporation of Hastings to hold the annual congress in that town during the month of June. The date of the congress has been fixed for Thursday and Friday, June 12 and 13. The Association headquarters will be the Queen's Hotel, Hastings. Further particulars will be published later.

OMNIBUS FARES IN NORTHERN IRELAND.

Sir Lynden Macassey, K.B.E., K.C., who has been appointed chairman of the Fares Tribunal of Northern Ireland, sat for the first time at Hollywood, on February 11. The tribunal considered the application of the Belfast and County Down Railway Company for permission to alter the fares charged on the omnibuses running between Belfast and Hollywood. The other members of the Tribunal are Mr. D. L. C. Clarke, Assistant Secretary to the Ministry of Home Affairs, and Mr. Adrian Robinson, B.L. Before the inquiry opened the Route-Bus Owners' Association, of which Mr. William Chamberlain, general manager of Belfast Corporation Tramways, is president, the Municipal Councils Association and the Rural District Councils Association made representations to the Tribunal on the subject of the general principles which they consider should guide the members in the fixing of fares.

MISCELLANEOUS NEWS AND NOTES.

Increased Speed for Bradford.—The motors of fifty Bradford tramcars are to be rewound in order to increase the speed.

Manchester Tramway Employees contribute regularly to the upkeep of the local hospitals. Two years ago they contributed 1d. each every week, and in January, 1928, they doubled this amount.

Joint Municipal Omnibus Service.—Oldham Watch Committee has granted omnibus licences to Ashton-under-Lyne Corporation Transport Department, to be worked in conjunction with the Oldham Tramways Department.

Water Omnibuses for London.—Sir Samuel Instone's scheme of providing a motor boat service on the Thames is likely to come into operation. The boats will accommodate between 30 and 50 passengers. At Sir Samuel Instone's recent trial trip the boat traversed thirteen miles in 35 minutes.

Glasgow Omnibus Fare Reduction.—Glasgow Transport Committee has authorised the general manager to give effect to his proposal to reduce by a 1d. the long distance omnibus fares. The reduction will enable people who live in the suburbs to save 2s. weekly, if they travel four times daily.

Municipal Motor Licences.—The Public Control Committee of the London County Council has declined to support the suggestion that certain classes of municipal vehicles should be exempt from licence duty, pointing out that it is undesirable, save in very special circumstances, that particular classes of exemption should be made free from general taxation.

Salaries of L.C.C. Tramway Officers.—The London County Council on February 4 finally ratified the agreement as to salaries and wages reached by the Joint Committee of members and staff. The agreement is the result of prolonged negotiations on the stabilisation of the fluctuating cost of living bonus, together with a revision of rates which have long been recognised as inadequate.

L.M.S. Railway to Southend.—The scheme of the London, Midland and Scottish Railway for the improvement of their line from London to Southend, at an estimated cost of £7,500,000, includes the provision of new passenger stations at Leigh and Chalkwell, and the conversion of Gale-street Halt into a regular station. Electrified lines will be laid down between Barking and Dagenham.

Omnibuses for Haslingden.—At a meeting of Haslingden Town Council, it was stated that the tramways department would have omnibuses ready in place of the tramways on April 1. The substitution will take place on the Accrington and Rawtenstall section. Captain Baxter, chairman of the Haslingden Committee, remarked recently that heavy losses had been incurred on the tramway services.

Track Extension at Walthamstow.—Walthamstow Council is applying to the Ministry of Transport for borrowing powers, not exceeding £9,925, for extensions and improvements of the tramway track. It is intended to construct a double-track between the "Rising Sun" and Forest-road, at a cost of about £7,600, and to reconstruct the track inside the tramways depot, at an estimated cost of £3,352.

Important Coach Station Project for Central London.—An island site exceeding 30,000 square feet, opposite King's Cross Station, and with a frontage to Euston-road, has been acquired by a motor-coach syndicate for the erection of a terminal station and garage. The site is the most prominent of the four large London stations now in existence, and is two minutes' walk from one which occupies a secluded site in Bloomsbury.

L.C.C. Car Employees' Uniforms.—As from April 1 next, the motormen and conductors on the London County Council tramways will have one pair of winter trousers every two years and one pair of summer trousers each year, and the conductors a summer tunic every year. The extra cost is estimated at £610 every two years. It has been found that one summer tunic now issued to conductors every two years does not enable the men to maintain a satisfactory appearance.

Railway Negotiations With Lancaster.—Lancaster Corporation is seeking further powers with regard to its omnibus undertaking, and in particular to authorise entering into working agreements within a ten-mile radius. A scheme has been submitted to the Corporation jointly by the L.M.S. Railway and the Ribble Motor Services, Ltd., for road traffic co-ordination between the Corporations of Morecambe, Heysham and the two companies. The proposal is put forward as a basis of negotiation, and the Corporation is considering the matter.

Chester Omnibus Services.—The motor omnibus service of Chester Corporation which replaces the electric tramways was inaugurated on February 12. Alderman H. S. Dutton, chairman of the Transport Committee, drove a single-deck omnibus to Vicker's Cross. Among the passengers were the Mayor and Sheriff, and other members of the Corporation. Subsequently Alderman Dutton entertained the party to luncheon. The Corporation has now six 50-seat double-deck and ten 30-seat single-deck omnibuses. The full service will be brought into operation on Sunday.

Future of Keighley Transport.—The West Yorkshire Road Car Co., Ltd., has asked Keighley Corporation to be allowed to make an offer for the transport services. Alderman Albert Smith, chairman of the Tramways Committee, has stated that until more was known about the Transport Bill now before Parliament it would be unwise for the Corporation to deal with the future of the transport undertaking. The West Yorkshire Company is one of the companies in which the L.M.S. and L.N.E. Railway Companies now have a controlling interest. Keighley Corporation has a fleet of 32 petrol and 14 trolley omnibuses.

Digitized by Google

Improvements at Birkenhead.—Birkenhead Tramways Committee has decided to refit ten additional tramcars at an estimated cost of £2,000. The reconstruction work will be carried out at Laird Street Depot where, under the direction of Mr. Cyril Clarke, the tramways manager, some cars have already been refitted, as described in our issue of January 16. The Minister of Transport has consented to the running of motor omnibuses by Birkenhead Corporation from the borough boundary to King's-road to the junction of that road by King's-lane.

London Tramcar Licensing.—In reporting that Clause 87 of the Road Traffic Bill makes certain provisions as to licensing, fees, and conduct of passengers, the London County Council Special Committee on Traffic mentions that tramcars in London have to be licensed under the Metropolitan Public Carriages Act, 1869, while tramcars and trolley vehicles elsewhere do not require a licence. The committee points out that expenditure falls on the tramways account which would not be incurred if London were treated as the provinces. Together with the Highways Committee the Special Committee is considering the desirability of taking action on the question.

Question of Trolley Omnibuses at Hull.—Mr. E. S. Rayner, general manager and engineer of Hull Corporation tramways undertaking, speaking to a newspaper representative regarding the refusal of a ratepayers' meeting to approve powers being sought for the introduction of trolley omnibuses, said he believed the result would have been different if the people had had experience of the latest type of trolley omnibus. This vehicle was undoubtedly the cheapest, most comfortable, and most up-to-date vehicle obtainable. If the committee had been given power to run trolley omnibuses, Mr. Rayner said, they would have effected a saving of about £4,000 per year on one route alone, and in a few years with expanded services the saving would probably have reached £15,000 per year.

Reduced Fares at Sheffield.—Speaking of the reduction in fares to be made by the Sheffield Corporation Tramways Department on June 1 next, Mr. A. R. Fearnley, the general manager, said that it was hoped that the reduction would induce more people living in the outside districts to travel to the centre. Although the reductions would entail a loss in income of about £48,000, the department had no doubt of being able to make both ends meet with the assistance of the Electricity and Highways Committee. The Electricity Committee has recently agreed, it will be remembered, to reduce the price for energy to such an extent that there will be an estimated saving of £13,000. Mr. Fearnley added that it would not be possible to make any further reductions in fares. The 1d. stages would remain as at present; the 3d. return workmen's tickets would become unnecessary as the ordinary fare would be the same price.

PERSONAL.

Mr. H. H. Lincoln, general manager, Wallasey Corporation tramways and omnibuses, has been recommended for an increase of £100 per annum in his salary.

Mr. H. Taylor, foreman of the trolley omnibus section of Bradford Corporation Tramways, has been appointed superintendent of rolling stock and trolley vehicles at Darlington.

Mr. A. J. Spiller, who has been appointed a director of Simplex Conduits, Ltd., has been connected with the firm for thirty-two years. During the past ten years he held the position of secretary.

Mr. F. H. Corson, city electrical engineer at Gloucester, has been granted an increase of £100, the amount which he received whilst also holding the appointment of general manager of the transport undertaking.

Mr. C. H. Stafford, the new general manager of Burnley Corporation Tramways and Omnibuses Department, has been in the service of Reading Corporation Tramways since 1912. He was educated at Birmingham Municipal Technical School, and through the war was a flying officer in the R.A.F.

Mr. T. A. G. Margary has been appointed borough electrical engineer and manager of Wolverhampton. He is at present distribution superintendent. The position became vacant in August last, and was originally advertised at a salary of £850. Subsequently the Electricity Committee was authorised to offer a salary of £1,000, rising by annual increments of £50 to £1,200.

Sir Felix Pole, chairman of the Associated Electrical Industries, Ltd., gave a dinner at the Savoy Hotel on February 11 to Mr. Gerard Swope, of New York, president of the General Electric Corporation of America, and Mr. Clark H. Minor, also of New York. Among those present were Sir Josiah Stamp, Mr. George Balfour, M.P., Mr. W. C. Lusk, Lord Ashfield, Sir Philip Nash, Dr. F. H. Parshall, and Mr. J. H. Thomas, M.P.

We regret to record the death of **Mr. Peter Fisher,** formerly general manager of Dundee Corporation Tramways. Mr. Fisher, who was 74 years of age, had been in failing health for some time. He went to Dundee from the Vale of Clyde Tramways, where he was permanent way and assistant traffic superintendent, in 1887. In 1890 he was promoted to be manager and secretary of the Dundee and District Tramways Company, and when the Corporation took over the tramways in 1898 Mr. Fisher was appointed as general manager, and retained the position until he retired in 1920. He was president of the Municipal Tramways and Transport Association in 1915-16. Mr. Fisher's work was always characterised by a lively intelligence and great energy. He readily adapted himself to the changed conditions of tramway operation in the period of transition from horse to electric traction, and during his management the Dundee tramways were electrified.

UNDERGROUND GROUP DIVIDENDS.

The dividends of the London underground passenger transport group were announced on Thursday night. No change is made in the distribution on the stocks of the Common Fund Companies. The amounts for the year are as follow:—

Metropolitan District, City and South London, and London Electric Ordinary, 5 per cent.; Central London Deferred, 6 per cent.; London General Omnibus Company and Associated Equipment Company Ordinary Stock, 8 per cent. (free of tax).

On the ordinary shares of the Underground Electric Railways of London the dividend will be 8 per cent., as compared with 7 per cent. The sum reserved from this year's net revenue balance is rather larger.

The directors of the London and Suburban Traction Company state that the revenue for the year does not justify the payment of a dividend on the 5 per cent. preference shares.

THREE RAILWAY DIVIDENDS.

On Wednesday the following railway dividends were announced:

London Midland and Scottish.—Final dividend of 2½ per cent., making 4½ per cent. for the year (against 3½ per cent. for 1928).

Great Western.—Final dividend of 4½ per cent., making 7½ per cent. for the year (against 5 per cent.).

Southern Deferred Stock.—2½ per cent. for the year (against 2 per cent.).

All three companies make substantial additions to the balances carried forward.

FINANCIAL.

Dublin and Blessington Tramways show a small loss for the last year. The result compares favourably with the previous year, having regard to omnibus competition.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended February 12 amounted to £79,772, an increase of £3,773 compared with the corresponding week of last year. The route length was 165.55 miles, as compared with 165.78 a year ago. From April 1 (the commencement of the financial year) to February 12 (45 3-7 weeks) the total receipts were £3,805,843, an increase of £61,718.

Municipal Transport Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended January 25 give total receipts of £414,814, or £36,637 more than in the corresponding week of last year. The aggregate receipts for 43 weeks amounted to £17,898,321, an increase of £807,729 over the corresponding period of last year.

Bristol Tramways and Carriage Co.—For the year ended December 31, 1929, the revenue amounted to £1,199,553 and the working and general expenses and renewals to £1,043,816, leaving, with the balance brought forward, a net revenue of £167,352. After payment of interest on debenture stocks, a dividend on preference shares of 4 per cent., an interim of 4 per cent., and a final of 6 per cent. on the ordinary shares, and adding £10,000 to reserve, £4,277 is carried forward. Receipts of the tramways showed a decrease of £3,296 and those of the carriage department an increase of £46,551. The number of passengers on the cars and omnibuses was 117,838,722, as against 112,168,239 in 1928.

CONTRACTS.

Glasgow Tramways Committee has ordered 2,000 Cosmos traction lamps from Metropolitan-Vickers Supplies, Ltd.

Edgar Allen & Co., Ltd., have a contract from Liverpool Tramways Committee for special track work, at £1,330.

Todmorden Corporation has ordered an "Eqwhipple" engine starter from the Equipment and Engineering Co., Ltd.

Colchester Tramways Committee is obtaining tenders for a 32-seat saloon omnibus and a 48-seat double-deck omnibus.

Arcos, Ltd., has placed an order for an "Eqwhipple" engine starter for Moscow with the Equipment and Engineering Co., Ltd.

Rochdale Tramways Committee has placed an order for a No. 2 improved celerity rail grinder with the Equipment and Engineering Co., Ltd.

Hong Kong Tramways have placed an order for an H.8 "Luchard" high pressure air compressor for tyre inflation with the Equipment and Engineering Co., Ltd.

Douglas Tramways Committee has accepted the tender of Tilling-Stevens Motors, Ltd., for the supply of seven chassis for motor omnibuses at £1,140 each, and the tender of the Northern Counties Motor Engineering Co. for seven bodies at £470 each.

Rotherham Transport Committee has authorised the transport manager to purchase two omnibuses seating 28 passengers, at an estimated cost of £1,500; also to purchase feeders, at a total cost of £792, for the Kimberworth route when converted to railless traction.

The British Thomson-Houston Co. has an order from the High Commissioner for India for four water wheel driven alternator sets to be used in the Shanan power station in connection with the Uhl River hydro-electric scheme, to which Messrs. Preece, Cardew & Rider are the consulting engineers.

The Metropolitan-Vickers Electrical Co. has secured a contract for the complete machinery and plant for the new State electric power station at Montevideo. Exclusive of buildings the contract amounts to nearly three quarters of a million sterling, and includes two 25,000 kw. 3,000 r.p.m. turbo generator sets.

Digitized by Google

Portsmouth Electricity Committee has recommended acceptance of the English Electric Company's tender, at £41,760, for the supply of switchgear. Ten firms submitted tenders.

Bradford Tramways Committee has placed the following contracts :—Yorkshire Repetition Casting Co., Ltd., 60 tons of hand-brake shoes and 60 tons of brake blocks ; English Electric Co., Ltd., rewinding 100 tramcar motors at £96 15s. 6d. per motor.

Omnibus Order of Hull Tramways Committee.—In view of the result of the poll on the proposed Bill of the Corporation, the Hull Tramways Committee cannot now introduce trolley omnibuses. An order for trolley omnibuses had, however, been placed in expectation that the Bill would be approved. The committee is now arranging that the deputy-chairman, town clerk, and general manager should interview the makers concerned with a view to substituting petrol omnibuses.

British Insulated Cables, Ltd., of Prescot, have recently secured a number of important contracts for electrical work. Among these is an order of 66,000-volt cables for one of the large power companies operating in London. The value of this contract is about £250,000. Another contract is for a new G.P.O. trunk telephone cable from Manchester to Chester, a distance of 42 miles. Large orders have been received for telephone cables for shipment abroad. These include 96,000 yards of underground cable, a short length of submarine cable for Shanghai, and 2,000 yards of underground cable for Australia. The Southern Railway has placed an order for 40,000 rail bonds.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

Name.	Week ended	Latest Return. 1929	1930	+ or —	Aggregate. Wks.	1929-30	+ or —
		£	£	£		£	£
Aberdare U.D.C.	Feb. 11	429	801	+ 372	45⅔	27,284	+ 3,062
,, Motor Buses	,, 11	203	287	+ 84	45⅔	11,812	+ 1 862
,, Total	,, 11	632	1,088	+ 456	45⅔	39,096	+ 4,924
Aberdeen Corp.	,, 5	4,387	4,652	+ 265	37⅔	180,939	+ 14,992
Ashton-u-Lyne Corp.	,, 1	806	865	+ 59	44	40,322	+ 1,576
,, Motor Buses	,, 1	436	476	+ 40	44	21,393	+ 2,877
,, Trolley Buses	,, 1	280	270	— 10	44	12,420	— 666
,, Total	,, 1	1,522	1,611	+ 89	44	74,135	+ 3,787
Ayr Corporation	,, 8	408	405	— 3	38	23,279	+ 1,414
Barrow Corporation	Jan. 25	505	497	— 8	43	25,557	— 3,088
,, Motor Buses	,, 25	291	338	+ 47	43	16,709	+ 7,196
,, Total	,, 25	796	835	+ 39	43	42,266	+ 4,108
Belfast City	Feb. 7	10,554	10,908	+ 354	44⅓	500,008	+ 82,186
,, Motor Buses	,, 7	814	1,310	+ 496	44⅓	49,746	+ 34,197
,, Total	,, 7	11,368	12,218	+ 850	44⅓	549,754	+ 116,313
Birkenhead Corp.	,, 9	1,569	1,434	— 135	45	74,056	— 10,050
,, Motor Buses	,, 9	2,698	2,906	+ 208	45	159,386	+ 30,171
,, Total	,, 9	4,267	4,340	+ 73	45	233,442	+ 20,121
Birmingham Corp.	,, 4	26,775	27,027	+ 252	44	1,210,818	+ 17,475
,, Motor Buses	,, 4	11,437	14,288	+ 2,851	44	595,504	+ 106,054
,, Trolley Buses	,, 4	552	579	+ 27	44	25,032	+ 774
,, Total	,, 4	38,764	41,894	+ 3,130	44	1,831,354	+ 124,303
Blackburn Corp.	,, 5	1,903	1,694	— 209	44⅓	86,199	— 4,736
,, Motor Buses	,, 5	Nil	306	+ 306	13⅔	4,754	+ 4,754
,, Total	,, 5	1,903	2,000	+ 97	44⅔	90,953	+ 18
Bradford Corporation	,, 8	13,764	13,971	+ 207	45	668,078	+ 35,681
Brighton Corporation	,, 9	1,923	2,066	+ 143	45	117,333	+ 3,117
Burnley Corporation	,, 8	3,262	3,050	— 212	...	...	...
,, Motor Buses	,, 8	604	637	+ 33	...	...	...
,, Total	,, 8	3,866	3,687	— 179	...	...	...
Burton-on-Trent Cpn.	,, 9	415	850	+ 435	45	23,827	+ 5,019
Bury Corporation	,, 9	2,022	1,791	— 231	45	89,436	— 9,055
,, Motor Buses	,, 9	302	896	+ 594	45	27,329	+ 10,605
,, Total	,, 9	2,324	2,687	+ 363	45	116,765	+ 1,550
Cardiff Corporation	,, 8	6,900	7,360	+ 460	44⅔	347,189	+ 6,938
Chatham and District	,, 6	991	1,041	+ 50	5	5,678	+ 268
Chesterfield Corp.	,, 10	1,888	1,971	+ 83	45	89,577	+ 3,468
Colchester Corp.	,, 12	411	518	+ 107	46	25,649	+ 4,772
Colne Corporation	,, 5	631	619	— 12	45	32,072	+ 293
Coventry Corporation	,, 9	2,093	2,120	+ 27	45	96,842	+ 2,218
,, Motor Buses	,, 9	1,440	1,820	+ 380	45	75,121	+ 20,080
,, Total	,, 9	3,533	3,940	+ 407	45	171,963	+ 22,298
Darlington Corp.	,, 8	957	1,014	+ 57	44⅔	45,223	+ 1,290
Derby Corporation	,, 8	2,365	2,315	— 50	45	112,817	— 3,229
,, Motor Buses	,, 8	600	830	+ 230	45	34,576	+ 14,417
,, Total	,, 8	2,965	3,145	+ 180	45	147,393	+ 11,188
Dover Corporation	,, 8	310	357	+ 47	45	18,402	+ 570
Dundee Corporation	,, 4	3,148	3,344	+ 196	37⅔	131,273	+ 5,233
East Ham Corp.	,, 8	2,110	2,336	+ 226	44⅔	103,605	+ 4,701
Edinburgh Corp.	,, 1	11,994	13,819	+ 1,825	37⅓	544,063	+ 21,986
,, Motor Buses	,, 1	2,854	3,502	+ 648	37⅓	131,477	+ 15,229
,, Total	,, 1	14,848	17,321	+ 2,473	37⅓	675,540	+ 37,215
Exeter Corporation	,, 12	696	715	+ 19	46	39,254	+ 659
Glasgow Corporation	,, 1	41,592	43,821	+ 2,228	35	1,562,823	+ 20,464
,, Motor Buses	,, 1	4,787	7,133	+ 2,346	35	214,085	+ 12,995
,, Total	,, 1	46,380	50,954	+ 4,574	35	1,776,908	+ 33,459
Gloucester Corp.	,, 5	496	652	+ 156	44⅔	26,989	+ 2,204
Grimsby Corporation	,, 8	1,232	1,464	+ 232	45	66,016	+ 6,045
Halifax Corporation	,, 4	4,128	4,965	+ 837	44¼	210,338	+ 16,952
Huddersfield Corp.	,, 8	6,143	6,111	— 32	45	289,080	+ 3,393
Hull Corporation	,, 8	5,915	5,931	+ 16	45	273,551	+ 1,563
,, Motor Buses	,, 8	1,257	1,472	+ 215	45	64,168	+ 8,517
,, Total	,, 8	7,172	7,403	+ 231	45	337,719	+ 10,080
Ilford Corporation	,, 8	1,382	1,455	+ 73	44⅔	67,725	+ 1,382
Ipswich Corp. Trol.Bus	,, 8	1,154	1,205	+ 51	45	58,265	+ 3,998
Isle of Thanet	,, 5	321	334	+ 13	5½	1,823	+ 108
Kilmarnock Corp.	,, 8	425	453	+ 28	38⅔	18,517	+ 1,313
Lancashire Un.	,, 2	2,310	2,192	— 118	4⅓	10,795	— 20
,, Motor Buses	,, 2	3,734	4,514	+ 780	4⅓	21,754	+ 4,264
Leeds Corporation	,, 8	18,002	19,050	+ 1,048	44⅔	882,437	+ 28,743
Leicester Corp.	,, 8	7,802	8,108	+ 306	45	381,308	+ 18,918
Lincoln Corp.	,, 9	843	858	+ 15	45	41,851	+ 1,847
Liverpool Corp.	,, 8	28,031	28,719	+ 688	44⅓	1,357,799	+ 26,753
London County Coun.	,, 12	75,999	79,772	+ 3,773	45⅔	3,805,843	+ 61,718
Luton Corporation	,, 5	344	386	+ 42	44⅓	18,156	+ 1,146
Maidstone Corp.	,, 6	180	120	— 60	44⅓	8,560	— 3,102
,, Motor Buses	,, 6	234	331	+ 97	44⅓	14,313	+ 4,219
,, Trolley Buses	,, 6	266	279	+ 13	44⅓	13,656	+ 1,695
,, Total	,, 6	680	730	+ 50	44⅓	36,529	+ 2,812
Manchester Corp.	,, 8	32,691	34,215	+ 1,524	45	1,577,298	+ 14,674
,, Motor Buses	,, 8	4,293	5,011	+ 718	45	223,924	+ 33,583
,, Total	,, 8	36,984	39,226	+ 2,242	45	1,801,222	+ 48,257

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS—*Continued.*

Name.	Week ended	Latest Return. 1929	1930	+ or —	Aggregate. Wks.	1929-30.	+ or —
		£	£	£		£	£
Middlesbrough Corp.	Feb. 4	1,066	1,056	— 10	44⅔	50,563	— 381
,, Motor Buses	,, 4	492	595	+ 103	44⅔	23,552	+ 3,555
,, Total	,, 4	1,558	1,651	+ 93	44⅔	74,115	+ 3,174
Newcastle-on-Ty. Corp	,, 8	8,967	9,027	— 60	45	444,314	+ 19,760
,, Motor Buses	,, 8	1,805	2,099	+ 294	45	91,362	+ 8,133
,, Total	,, 8	10,772	11,126	+ 354	45	535,676	+ 27,893
Newport Corporation	,, 1	659	687	+ 28	44	33,859	+ 2,342
,, Motor Buses	,, 1	1,659	1,658	— 1	44	74,653	+ 476
,, Total	,, 1	2,318	2,345	+ 27	44	108,512	+ 2,818
Northampton Corp.	,, 7	1,268	1,062	— 206	44⅔	50,315	— 14,978
,, Motor Buses	,, 7	391	648	+ 257	44⅔	30,178	+ 16,171
,, Total	,, 7	1,659	1,710	+ 51	44⅔	80,493	+ 1,193
Nottingham Corp.	,, 6	6,304	6,270	— 34	44⅓	291,960	— 10,537
,, Motor Buses	,, 6	2,092	2,997	+ 905	44⅓	112,269	+ 26,345
,, Trolley Buses	,, 6	557	603	+ 46	44⅓	26,724	+ 1,621
,, Total	,, 6	8,953	9,870	+ 917	44⅓	430,953	+ 17,429
Oldham Corporation	,, 8	3,441	3,463	+ 22	46	165,158	— 15,129
,, Motor Buses	,, 8	1,801	1,977	+ 176	46	92,728	+ 26,900
,, Total	,, 8	5,242	5,440	+ 198	46	257,886	+ 11,771
Plymouth Corp.	,, 8	3,156	3,245	+ 89	44⅓	169,033	— 3,087
,, Motor Buses	,, 8	1,683	2,057	+ 374	44⅓	91,174	+ 13,646
,, Total	,, 8	4,839	5,302	+ 463	44⅓	260,207	+ 10,559
Portsmouth Corp.	,, 8	4,855	5,721	+ 866	45	288,786	+ 12,931
Preston Corporation	,, 5	1,641	1,617	— 24	44⅓	76,940	+ 1,091
,, Motor Buses	,, 5	440	497	+ 57	44⅓	22,314	+ 2,800
,, Total	,, 5	2,081	2,114	+ 33	44⅓	99,254	+ 3,891
Rawtenstall Corp.	,, 9	835	796	— 39	45	38,258	— 2,045
,, Motor Buses	,, 9	460	527	+ 67	45	23,609	+ 3,228
,, Total	,, 9	1,295	1,323	+ 28	45	61,867	+ 1,183
Reading Corporation	,, 6	1,409	1,502	+ 93	45	68,770	+ 436
,, Motor Buses	,, 6	795	920	+ 125	45	41,612	+ 2,610
,, Total	,, 6	2,204	2,422	+ 218	45	110,382	+ 3,046
Rochdale Corp.	,, 8	2,865	2,584	— 281	...	120,452	— 11,490
,, Motor Buses	,, 8	1,283	1,569	+ 286	...	71,566	+ 11,128
,, Total	,, 8	4,148	4,153	+ 5	...	201,018	— 362
Rotherham Corp.	,, 10	2,400	2,733	+ 333	46	126,671	+ 10,682
Salford Corporation	,, 9	9,992	11,197	+ 1,205	45	507,350	+ 33,663
Sheffield Corp.	,, 8	19,898	20,460	+ 562	45	945,081	+ 30,680
Southampton Corp.	,, 5	2,998	3,241	+ 243	45	153,681	+ 8,473
,, Motor Buses	,, 5	633	883	+ 249	45	36,797	+ 9,915
,, Total	,, 5	3,631	4,124	+ 492	45	190,478	+ 18,388
Southend-on-Sea Corp.	,, 12	1,664	1,829	+ 165	44⅓	110,011	+ 809
Southport Corp.	,, 8	1,354	1,454	+ 100	44⅔	76,260	+ 412
St. Helens Corp.	,, 4	1,841	2,094	+ 253	44⅔	91,417	+ 6,313
Sunderland Corp.	,, 9	2,082	2,300	+ 218	46	109,867	+ 4,435
Swindon Corp.	,, 5	573	906	+ 333	44⅔	36,907	+ 10,696
Wallasey Corp.	,, 8	1,157	1,063	— 94	44⅔	58,591	— 35,514
,, Motor Buses	,, 8	1,602	1,832	+ 230	44⅔	93,660	+ 53,327
,, Total	,, 8	2,759	2,895	+ 136	44⅔	152,251	+ 17,813
Walsall Corporation	,, 2	3,264	3,544	+ 280	44	152,801	+ 13,367
Walthamstow Corp.	,, 8	2,134	2,312	+ 178	45	109,823	+ 7,808
Warrington Corp.	,, 6	877	884	+ 7	45	40,324	— 937
,, Motor Buses	,, 6	438	462	+ 24	45	20,749	+ 3,352
,, Total	,, 6	1,315	1,346	+ 31	45	71,073	+ 2,415
West Ham. Corp.	,, 8	5,324	6,146	+ 822	44⅓	273,205	+ 24,636
Wolverhampton Corp.	,, 2	Nil	Nil	Nil	44	Nil	— 15,958
,, Motor Buses	,, 2	2,682	2,337	— 345	44	122,866	+ 16,724
,, Trolley Buses	,, 2	3,151	3,602	+ 451	44	148,877	+ 24,527
,, Total	,, 2	5,833	5,939	+ 106	44	271,743	+ 25,293
York Corporation	,, 5	905	1,008	+ 103	45	47,113	+ 369
,, Motor Buses	,, 5	339	503	+ 164	45	19,089	+ 4,565
,, Total	,, 5	1,244	1,511	+ 267	45	66,202	+ 4,934

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

Name.	Week or M'th.	Latest Return. 1928-29.	1929-30.	Aggregate. Wks. or *Ms.*	1929-30.	In. or Dec.
Anglo-Argentine	Feb. 11	£88,732	£86,381	6 w	£502,099	— £15,359
Brazilian Traction $	Dec.	3,673,543	3,984,311	12 *m*	49,351,215	+ 6,576,402
British Columbia $	Dec.	1,228,405	1,255,522	6 *m*	7,251,473	+ 400,835
Buenos Aires Lacroze	Feb. 9	13,641	12,746	32 w	370,342	— 22,428
Burma E. Sup. Co. Rs.	Dec.	62,582	63,485	5 *m*	313,337	— 24,223
Calcutta ... Rs.	Feb. 8	127,915	117,299	5½ w	692,277	— 81,143
Cape Town	Dec.	32,709	30,332	...	...	...
Carthagena & Herrerias	Jan.	732	1,351	1 *m*	1,351	+ 619
Durban	Dec.	26,123	25,452	5 *m*	120,976	+ 2,106
East India	Jan.	3,562	3,553	6 *m*	23,535	+ 725
Kalgoorlie	Nov.	1,721	1,643	11 *m*	18,817	— 369
La Plata	Dec.	10,300	10,327	12 *m*	116,149	+ 2,604
Madras (2 weeks) Rs.	Jan. 31	42,605	44,960	4 w	94,311	+ 2,916
Para	Dec.	14,360	14,487	1 *m*	14,487	+ 127
Port Elizabeth ...	Dec.	9,830	9,115	...	...	...
Rangoon ... Rs.	Jan.	116,835	155,080	1 *m*	155,080	+ 38,245
Shanghai ... $	Jan.	319,220	363,400	1 *m*	363,400	+ 44,180
Singapore ... ...$	Jan.	115,000	139,000	4 *m*	527,000	+ 81,000
Winnipeg ... ...$	Dec.	586,264	641,362	12 *m*	6,635,237	+ 448,374

RAILWAY RECEIPTS.

6th Week ended Feb. 9th	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week	Inc. or Dec. to Date.
G.W.R.	176,000	— 6,000	358,000	+ 1,000	534,000	— 5,000	+ 10,000
L.M.S R.	410,000	— 9,000	858,000	— 40,000	1,268,000	— 49,000	— 117,000
L.N.E R.	286,000	— 2,000	662,000	— 12,000	948,000	— 14,000	+ 19,000
S.R.	251,000	+ 1,000	90,000	— 14,000	341,000	— 13,000	+ 27,000
Totals	1,123,000	— 16,000	1,968,000	— 65,000	3,091,000	— 81,000	— 61,000

ELECTRIC RAILWAYS.

Name.	Week Ended.	Latest Return. 1929.	1930.	+ or —	Aggregate. 1930.	+ or —
London Underground						
Common Fund Cos.	Feb. 8	264,600	288,400	+ 23,800	1,672,100	+ 161,200
Lond. & Sub. Group	,, 8	37,400	41,500	+ 4,100	244,300	+ 32,600
Metropolitan Railway	,, 8	34,300	35,900	+ 1,600	219,500	+ 9,500
Liverpool Overhead	,, 9	1,597	1,492	— 105	9,434	— 184
Mersey Railway	,, 8	4,321	4,516	+ 195	29,215	+ 1,023

Digitized by Google

THE
Tramway and Railway World
FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.
Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates—
FOR THE UNITED KINGDOM—Twenty-five shillings per annum.
FOR ALL PLACES ABROAD—Twenty-five shillings per annum. Postage to Canada, 6s.; to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS.

LONDON, FEBRUARY 22, 1930.

SUPPORT FOR THE MANAGER.

The municipal tramway industry must always manifest progress if it is to retain the passenger. There are two essentials that will go a long way towards ensuring progress. One is that the Committee must support their manager, whom they have chosen. Secondly, the manager must possess vision besides thorough acquaintance with the economic and mechanical details. It does not detract from the merits of the older generation of managers to say that in some details their work may be capable of improvement. That is particularly so in undertakings where, for reasons of economy, the staff is numerically weak. It is a fatal handicap for a manager to lack sufficient assistants, of higher capabilities than the average inspector, ready at any hour to watch the effect of changes, to observe the doings of rival vehicles, and to supply information that gives a key to bare traffic returns. Like the winning of battles, successful management depends largely upon efficient staff work. Judging by the manner in which the younger men are filling managerial positions that become vacant as the first generation of electric tramway managers passes away, they at least have been trained to good staff work. Evidence of that fact is shown by the changes and improvements that they effect with full confidence as to the results from the standpoints of finance and convenience to passengers and employees. In such circumstances, it may be useful to point out to Committees that a manager cannot do his best work unless assured of the support of the Committee from whom he derives his authority. The position at Sunderland may be cited as an instance. Heartily supported by the Committee and the late chairman, who left his sick-bed in order to move the adoption of the proposals, the manager first submitted plans for new construction, reconstruction of track and office reforms. Unfortunately, the Committee has not shown the same courage in regard to a further scheme which, though not involving expense, is necessary if the services are to be operated with the highest efficiency. It provides for a speeding-up and for changes in the timing points. Faced by opposition on the part of the employees, the Committee decided to postpone for six months the putting into operation of the new duty sheet. Taking all things into consideration, it would seem to have been wiser if a six months' trial had been given to the scheme. However, the interval is not being wasted. The manager and the chairman have attended a meeting of the men, and with renewed assurance to the men that the proposals will not entail any dismissals there is a prospect of the new rota being carried into effect by agreement.

THE ROAD TRAFFIC BILL.

SECOND READING CARRIED WITHOUT A DIVISION.

In the House of Commons on Tuesday the Road Traffic Bill was read a second time. Mr. H. Morrison, the Minister of Transport, gave a lucid exposition of the measure. He described the late Minister of Transport, Colonel Ashley, and himself as something in the nature of joint parents of the Bill, a great deal of preparatory work having been done by the former.

The Bill, he said, was the result of efforts of successive Governments and the Royal Commission on Transport, and was thus a national attempt to consolidate and amend traffic regulations. It aimed at making the law conform to public opinion by abolishing the speed limit for private cars. Any statutory speed limit was interpreted as a right to drive at a speed which might occasionally be dangerous; a limit of 40 miles an hour was neither better nor worse than the existing limit. The weight and momentum of the heavy motor-car were more serious, and that was the reason why a limit of 30 miles would be set up for such vehicles. The next object of the Bill was the safety of the road user. It proposed to make the granting of traffic licences dependent on freedom from physical disability; to raise the legal age at which persons may drive (nobody under the age of sixteen years is to drive any class of motor vehicle), and to punish dangerous driving more severely. A limitation would be placed on the hours of driving for those in charge of heavy vehicles. The Bill also provides for compulsory insurance against third-party risks. It provides a code for road users, the failure to observe which would tell against any person involved in an accident.

Of great importance was the decision to reduce the 1,298 licensing authorities to twelve, in order to secure a national policy of traffic co-ordination. The Commissioners would prevent waste of effort and of transport services, and they would have power to relate road to railway transport.

In view of the great national concerns involved, he had decided on a big national policy based on the recommendation of the Royal Commission on Transport. There were now 79 county boroughs, 246 non-county boroughs, and 772 urban district councils in England which were licensing authorities. In Scotland there were 201 licensing authorities, making a total of 1,298 in Great Britain. That was an impossible state of affairs, which had to be cleared up before they could get a national policy. He had resolved to bring the number of licensing authorities down to twelve.

It was proposed to have twelve traffic areas and twelve sets of Commissioners. The Commissioners would have power to issue two forms of licences—one in respect of the vehicle and the other a road service licence. The Commissioners would have to take into account the traffic already on the road and alternative means of transport provided by public service vehicles and railways. Provision was made, subject to suitable safeguards, to enable local authorities already possessing transport powers to appear before the Commissioners and make their case in the same way as private undertakers.

He hoped the House would agree to the instruction to the Committee that they should amalgamate the Omnibuses Bill and the Road Traffic Bill. In conclusion, Mr. Morrison said the Government had been gratified by the reception of the Bill which, in his judgment, was a vast statutory and administrative opportunity to order and co-ordinate road traffic. He appealed to all parties to let the Bill have reasonably rapid consideration, in order that they might get on with the work of administrating "a great charter for the ordered use of the King's highway."

After some discussion, the second reading was agreed to without a division.

In the House of Commons on Thursday, Mr. Morrison moved "That it be an instruction to the Committee on the Road Traffic Bill that they have power to consolidate the Road Traffic Bill and the Omnibuses Bill." The House, said the Minister, had affirmed the principle of both Bills on the second reading. The two Bills had relationship, and it would be unfortunate if the House were to pass them separately. To make a good workmanlike measure of both it was desirable that the Bills should be consolidated and brought into proper relationship.

Colonel Ashley thought the procedure now proposed was unusual. The Minister might have moved in Committee to reinsert Part V. of the original Bill.

Earl Winterton said the framing of the matter in such a form that the House could not discuss the merits was a high piece of Parliamentary finesse, on which he congratulated Mr. Morrison.

Mr. Morrison replied that the two Bills had a common purpose and the House had given them a second reading which was tantamount to a decision that they should be passed. He thought the proposal for amalgamation was a proper one.

After further debate the motion was carried by 245 to 147.

Digitized by Google

THE UNDERGROUND RAILWAYS BILL.

In the House of Commons on Monday, Mr. Charleton (Leeds) moved, and Mr. Latham, assistant secretary of the Railway Clerks' Association, seconded, the rejection of the London Underground Electric Railways Bill. The measure involves the expenditure of £12,000,000 for the extension of the Finsbury Park tube and other works designed to relieve unemployment.

Mr. J. H. Thomas, Lord Privy Seal, appealed to Mr. Charleton to withdraw his motion. Never, he said, was a Minister in a more difficult position. Twenty years ago he moved the rejection of a Railway Bill in order to secure recognition of trade unions, but to-day the trade of the country was in a serious position and he was bound to consider unemployment first.

Mr. Charleton based his motion on an allegation that since the General Strike the Underground Company had required men to leave their unions on receiving promotion to supervisory grades. Mr. Wilson, a former member of the N.U.R. executive, supporting the rejection, asked if Mr. Thomas was going to give Government aid to a company which interfered with the right of employees to join a trade union.

Major Glyn made a statement authorised by the companies to the effect that a full and frank discussion of the men's grievances would be offered.

The motion for rejection was then withdrawn and the Bill was read a second time.

BRISTOL TRAMWAYS AND CARRIAGE CO.

At the annual meeting of the Bristol Tramways and Carriage Co., Ltd., on February 18, Mr. V. G. Verdun Smith, chairman and managing director, said that the statement of facts was a complete answer to any question of the decay and decline of tramways as an efficient and convenient means of locomotion in Bristol. The City Council had come to a decision not to exercise their option, and, therefore, the company would be left in possession of the undertaking until 1936. The company had entered into an arrangement with the Corporation by which each authority would appoint an eminent firm of chartered accountants to value the tramways undertaking and the omnibus business. So far as the city services were concerned, the company considered the carrying on of the tramways undertaking, subject to the option to purchase, recurring as it did every seven years, was so unsatisfactory to all the interests concerned that they might be willing to entertain, on suitable terms, an arrangement for sale without recourse to arbitration under the Tramways Act. Continuing, Mr. Verdun Smith said that while receipts from the tramways had decreased by £3,296, through substantial concessions in fares introduced at the beginning of the year, a larger decrease in receipts might have been expected. There had been further substantial development of the omnibus and motor-coach business, with the result that the additional revenue amounted to £46,551. There was left an amount of £74,277, out of which the directors recommended payment of a final dividend on ordinary shares at 6 per cent., making a total of 10 per cent. for the year. The sum of £10,000 was to be added to the reserve fund for contingencies and renewals, and the remaining £4,277 would be carried forward. The report was adopted.

THE TRAMWAYS, LIGHT RAILWAYS AND TRANSPORT ASSOCIATION.

At an extraordinary meeting of the Tramways and Light Railways Association, held at Caxton Hall on February 18, it was unanimously decided that the name of the Association should be changed to the Tramways, Light Railways and Transport Association.

Mr. E. H. Edwardes, the chairman of the Association, who presided, briefly and lucidly explained the reasons which had led the Council to recommend the change. He stated that, while the existing Articles of Association made full allowance for the changes which had been brought about in the transport industry, the Council felt that the new title more fully covered the duties and functions of the Association, and a desire that the change should be made had been generally expressed by members of the Association who attended the Congress at Sheffield last June.

LIVERPOOL OMNIBUS FARES.

Liverpool Corporation Tramways and Omnibuses will carry to reserve a surplus estimated at £66,000. In 1927-28 the surplus was £148,000, and in 1928-29 £96,753. In the current year the tramways have carried 222,419,444 passengers, a decrease of 183,786 in number and of £19,632 in receipts. On the omnibuses 19,383,877 passengers have been carried, an increase of 6,241,000 and in receipts of £45,697. It is stated, however, that there is a deficit of about £38,000 on the omnibuses. Alderman F. C. Wilson, chairman of the Tramways Committee, attributes the reduced tramways revenue to the transfer of passengers from the tramcars, which pay, to omnibuses, which do not pay. If the latter are to be run at a profit, the fares, he says, should be at least double those on the cars. A good deal of the loss is due to services on routes that are not fully developed. The electricity undertaking is again contributing £50,000 to the relief of the rates.

Safety Glass for Omnibuses.—The Minister of Transport having sanctioned a loan of £8,322 for the purchase of five double-deck omnibuses, the Stockton Medical Officer of Health suggested to the Town Council the fitting of safety glass in the new vehicles. The Council asked the general manager to present a report on the question of cost to the next meeting of the Omnibus Committee.

MISCELLANEOUS NEWS AND NOTES.

Track Relaying at Bradford.—The tramways in the centre of the city are being relaid at a cost of £16,874.

Omnibuses for Ashton.—The Corporation of Ashton-under-Lyne has applied to the Minister of Transport for consent to borrow £10,000 for the purchase of new omnibuses.

London Football Traffic.—On February 15 the London County Council Tramways had services from various points inside the county to the West Ham United ground at the rate of 78 cars an hour for the cup tie with Millwall.

The Ransome & Marles Bearing Co., Ltd., of Newark-on-Trent, have been awarded a gold medal for their exhibit at the International Exhibition at Barcelona. The company was the only British ball-bearing company to whom a gold medal was awarded at this exhibition.

Trial of a Ticket Printing Machine.—The London County Council has decided to arrange as an experiment, for the use of a self-printing machine by conductors, and has accepted the offer of the Allegemeine Electricitats Gesellschaft for a machine at a cost not exceeding £50.

American Motor Cars.—Mr. Snowden, replying to a question in the House of Commons on Tuesday, said that the number of motor cars, including complete chassis, consigned from the United States, which were in bonded warehouses in this country on November 12 was 900.

Tramway to Dunlop Rubber Works.—The employees of the Dunlop Rubber Company at Erdington arranged an inaugural ceremony to mark their appreciation of the construction of an extension of Birmingham Corporation Tramways from Tyburn-road into the Fort Dunlop works.

"Express" Tramcars at Bradford.—By the rewinding of the motors, fifty of the Bradford Corporation tramcars have been given increased speed. These cars are very popular. As already reported, the English Electric Co. has received a contract to rewind the motors of fifty more cars.

Success of a 2d. Universal Fare.—Councillor A. H. Gledhill, chairman of Halifax Corporation Tramways, has stated that the 2d. universal fare on the inner circle double-deck omnibuses had raised the revenue from 17d. per mile to 29d. per mile. For many weeks the tramway receipts had shown an increase of between 2d. and 3d. per car mile.

Trolley Omnibuses Considered at Preston.—Preston Tramways Committee is investigating the possibility of adopting the trolley omnibus system. Recently the members inspected one or two undertakings, and appear to have been favourably impressed by the flexibility of the vehicles and their smooth running. A section of tramway track in Preston requires relaying, and the Committee wish to avoid the expense.

Lower Fares at Manchester.—The Tramways Department has made a reduction in the fares on the Hyde and Altrincham omnibus routes, and also on the longer runs on the Altrincham tramway service. The maximum fare is to be 4d., as against 5½d. previously charged. Other reductions are to be made, and Mr. R. Stuart Pilcher, general manager, has stated that the concessions were being made because of competition.

Leeds Tramway Profits.—For the current financial year Leeds Corporation Tramways Department has presented a revised estimate based on the year's annual working, which shows a surplus of £55,460; the profits are thus greater than was anticipated, for an earlier estimate placed a surplus of £49,910. It is understood that there was a considerable loss on the motor omnibuses which last year lost nearly £40,000. Receipts were £7,410 less than was estimated, which is accounted for by trade depressions.

A Hitch With the New Cars for Leeds.—Work on the construction of 150 new tramcars for Leeds City Tramways, which are to take the place of old vehicles, has been delayed, as the Government has declined to give a grant towards their construction. A letter from the Government stated that the work would not assist employment locally, and that the industries concerned in the work were not in a depressed state. The estimated cost of the fleet was £348,000, the labour charges being apportioned at about £235,000. The new fleet was to be modelled on a design embracing several novel features, which has been introduced by the tramways manager, Mr. R. L. Horsfield.

Northern Ireland Fares Tribunal.—The Road Transport Fares Tribunal of Northern Ireland has given its decision on the application of the County Down Railway Company's application for an increase in the fares on passenger road transport services between Holywood and Belfast. In one instance—Belfast and Holywood—the fares were increased from 3d. to 4d. single and from 5d. to 7d. return. On three other routes the single fare was raised from 2d. to 3d. and the return fixed at 6d. The new schedule will be reviewed after March 31, 1931, in order to make the services an economic and self-subsisting undertaking. Workmen's tickets before 8.30 a.m. on the omnibuses have been granted by the company at a weekly fare of 3s.

Charing Cross Railway Bridge.—Charing Cross Railway Bridge Bill, promoted by the London County Council, was read a second time in the House of Commons on Wednesday by 230 votes to 62. The Minister of Transport said that the scheme was approved by the Ministry of Transport and the London County Council, and there were no better traffic experts than the officials of these authorities. They were all in favour of the scheme. The new tunnels on the south side about which there has been much criticism would not be "miasmic holes, but gloriously lighted highways." The new station on the south side was needed because the existing lines could not all be brought into Waterloo, and because the Southern Railway passengers had a right to be brought near to the tube.

Digitized by Google

BRITISH INDUSTRIES FAIR.

The annual Board of Trade British Industries Fair, organised by the Birmingham Chamber of Commerce and the Department of Overseas Trade, was opened on Monday last at Castle Bromwich and at Olympia, London. At each hall the exhibition continues until the evening of Friday, February 28. The great building at Birmingham is occupied by exhibits from the engineering industries. At Olympia the greatly enlarged hall shelters a vast array of stalls stocked with miscellaneous manufactures. As usual, the Queen was an interested visitor and purchaser at Olympia. Excellent arrangements have been made for the reception of the buyers who come to the Fair from abroad. On behalf of the Government the Export Credits Trade Department is authorised to guarantee up to 75 per cent. of their value sterling bills of exchange drawn in connection with the export of British goods. Among the exhibitors at Birmingham whose stalls are of special interest to our readers are the following: Allen-Liversidge, Ltd., British Thomson-Houston Co., Ltd., Birkby's, Ltd., J. Brockhouse & Co., Ltd., Cuxson, Gerrard & Co., Ltd., Dennis Bros., Ltd., Gledhill-Brook Time Recorders, Ltd., Hadfields, Ltd., Metro-Vick Supplies, G. D. Peters, Ltd., Ransomes, Sims & Jefferies, Ltd., and the United Steel Companies, Ltd.

BUSINESS NOTES.

Messrs. Eastwood & Kenning have purchased the business of Davidson (Trafford Park), Ltd. Mr. H. J. W. Laslett is continuing as general manager and the personnel and staff remain practically the same.

Alloy Welding Processes, Ltd., of Ferry-lane Works, Forest-road, Walthamstow, E.17, have recently engaged the services of a tramway expert who will call upon tramway managers with the object of assisting them in their welding problems, and demonstrating A.W.P. electrodes.

G. D. Peters & Co., Ltd., have created a new department to deal with the development of omnibus equipment of all descriptions. Their demonstration omnibus, which toured the country last year, created a great deal of interest, and its success is responsible for their present decision. The new department will be supervised by Mr. A. C. Riley, who has had a long experience with all types of motor vehicles, particularly from the operating and maintenance points of view, and is well known in the omnibus and tramway world.

Clough, Smith & Co., Ltd., 36, Victoria-street, London, S.W.1, have issued a useful illustrated booklet, which epitomises the results of the wide experience of the firm in trolley omnibus systems. The company has for some years specialised in trolley omnibus installations, including the overhead equipment, feeder cables, car sheds, etc., and the supply of the Karrier-Clough trolley omnibus. Examples of their work are to be seen at Doncaster, Darlington, Chesterfield, Keighley, and elsewhere. A very successful feature of their activities is the Karrier-Clough six-wheel low-loading trolley omnibus, which is the outcome of their many years' experience. This comfortable vehicle carries up to 64 passengers, and its advantages as set forth by the makers are deserving of careful attention where the replacement or extension of a tramway is under consideration.

PERSONAL.

Mr. L. St. Lawrence Pendred is to be president of the Institution of Mechanical Engineers for the ensuing year.

Mr. S. E. Burgess, borough engineer of Middlesbrough Corporation, has been granted an increase in salary to £1,050.

Mr. C. Partington, rolling stock superintendent, Huddersfield Corporation Tramways, has been granted an increase in salary to £400 per annum.

Mr. A. Dickson, now garage superintendent of Oldham Corporation Tramways, has been appointed rolling stock superintendent at a salary of £400 per annum.

Mr. C. K. Everitt has been appointed chairman of Edgar Allen and Co., Ltd., Imperial Steel Works, Sheffield. He has been a director since 1908 and has managed the steel department.

Mr. A. A. Jackson, chief clerk of the Nottingham Corporation Passenger Transport Department, has been appointed deputy-manager and engineer of Coventry Corporation Transport undertaking.

Mr. D. Maxwell Buist has been appointed engineer for the North-Eastern England Electricity Supply Scheme under the Central Electricity Board. During the past two and a half years he has been chief electrical engineer of Synthetic Ammonia and Nitrates, Ltd. Earlier appointments include those of chief assistant to the city electrical engineers of Hull and Edinburgh.

Mr. Norman A. Hardie, general manager (sales) of the Associated Equipment Company, is about to make an extensive tour through South America. He will visit a number of "ACLO" depots (the registered name under which A.E.C. vehicles are marketed in South America and Germany) and investigate new channels of distribution in all South American States in connection with the recently developed "Regent" and "Regal" omnibuses and the new range of A.E.C. goods vehicles. The company feel that the new range of "AECO" vehicles, which have undergone extensive tests at home and abroad, could be successfully offered in competition with the American types. F.W.D. vehicles fitted with A.E.C. 95 h.p. six-cylinder power units should prove an extremely useful type suitable for service under difficult conditions existing outside the principal cities.

CONTRACTS.

Edgar Allen & Co., Ltd., are supplying special trackwork for the new transport depot of the Dundee Corporation.

Glasgow Tramways Committee has ordered 2,000 Cosmos traction lamps from Metro-Vick Supplies.

Halley Motors, Ltd., of Glasgow, have an order from Manchester Corporation for two petrol motor tipping wagons.

Forest City Electric Co., Ltd., Stretford, has an order from Manchester Transport Committee for tramway rail bonds.

The L.M.S. Railway Co. has placed a contract for electric lamps for one year with Siemens Electric Lamps & Supplies, Ltd.

The East Surrey Traction Co., Ltd., has placed an order for power petrolling plant with the Equipment & Engineering Co., Ltd.

Swansea Electricity Committee has awarded a contract for the supply of switchgear to the Metropolitan-Vickers Electrical Co., Ltd.

Glasgow City Council has accepted the tender of Ransome and Rapier, Ltd., for the supply of a two-ton petrol-electric tower wagon.

Bournemouth Tramways Committee has accepted the tender of John I. Thornycroft & Co., Ltd., at £16,740, for twelve 32-seat low-loading omnibuses.

Dorman, Long & Co., Ltd., of Middlesbrough, are the successful tenderers for the supply of tramway rails to Glasgow Corporation Tramways at £25,250.

Albion Motor Car Co., Ltd., has a contract from Grimsby Tramways Committee for two motor omnibus chassis at £718 each. Charles H. Roe, Ltd., are supplying two single-deck bodies at £450 each.

Coventry Corporation has placed an order with the Maudslay Motor Co., Ltd., for four double-deck covered-top 60-seat omnibuses, fitted with bodies by the Brush Electrical Engineering Co. The price per vehicle is £2,247.

The Central Electricity Board has placed contracts in connection with the Mid-East England electricity scheme to the approximate value of £230,000, as follow: Johnson & Phillips, Ltd., 33 kilovolt transmission lines, and two with the English Electric Co., Ltd., for 132 kilovolt transformers. The contract for transformers is additional to those recently announced.

The General Electric Company is supplying switchgear for Pinkston Power Station of the Glasgow Corporation. The amount of the tender was £32,082 3s. Other tenders accepted by the Transport Committee are: Copper bonds, Thomas Bolton & Sons, Ltd.; insulated bolts, British Insulated Cables, Ltd.; commutators for G.E.58 motors, P. R. Jackson & Co., Ltd.

Manchester Transport Committee has accepted the tender of Maitland & Co. for the electrical work at Princess-road omnibus garage and that of the Chloride Electrical Storage Co., for replacement of the battery of an electric tower wagon.

Crossley Motors, Ltd., have received a third repeat order from the Race Course Betting Control Board for eleven 30-70 h.p. 4-cylinder, 6-wheel vehicles, which will be used for transporting the electrical equipment for use in connection with the totalisator. The Race Course Betting Control Board now owns 26 Crossley 6-wheelers.

The Vulcan Motor and Engineering Co., Ltd., of Southport, have just secured from the Birmingham Corporation one of the largest orders for double-deck omnibus bodies. The vehicles have seating capacity for 51 passengers. The order was obtained in keen competition, and will give full employment for the body builders of the company for a considerable time.

Messrs. Eastwood & Kenning, who recently purchased the business of Davidson (Trafford Park), Ltd., have received a repeat order from the Lancashire United Transport and Power Company for eight single-deck omnibus bodies on Leyland "Lion" chassis. Other orders include four 32-seat single-deck omnibuses on Tilling-Stevens B.10A.2 chassis for Caerphilly Urban Council; three "Davidson" patent double-deck omnibus bodies with twin enclosed staircases, to the order of Leyland Motors, Ltd., for Wallasey Tramways Committee; and three similar bodies to the order of the Daimler Motors, Ltd., also for Wallasey Tramways.

The English Electric, Ltd., have received three further orders for their electric trolley omnibuses, including seven single-deck saloon-type vehicles, each seating 32 passengers, mounted on three-axle type chassis, for Pontypridd. The equipment will consist of a D.K. 121 60 h.p. motor, fitted with roller bearings, and English Electric contactor type foot-operated controllers. An order for Southend comprises two double-deck, top-covered trolley omnibuses, mounted on three-axle type chassis, with air brakes operating on all wheels. The equipment will consist of an English Electric D.K. 122 twin type 80 h.p. motor, fitted with roller bearings and contactor type foot-operated controller. An order from Christchurch, New Zealand, is for six complete trolley omnibus chassis and equipment.

Glasgow Deputation to Berlin.—On the return from Berlin of the deputation from the Glasgow Transport Committee, Councillor Dollan, chairman of the committee, said that they were received very cordially by the municipal authorities, who gave them the greatest facilities for study and investigation. They had arranged also to send plans, designs, and specially prepared information in regard to their newest buildings and machinery. The deputation were invited to visit a number of other towns, but were able only to go to Leipzig. There they found that the modern bow collector, with which experiments are being made on two Glasgow routes, had been substituted for the wheel trolley arm.

Digitized by Google

FINANCIAL.

Liverpool Overhead Railway.—The directors recommend the payment of a dividend on the preference shares of 5 per cent. per annum, less income tax.

Underground Railways.—The net income of the Underground Electric Railways Company of London for 1929 was £1,113,213, an increase of £27,692. There was an increase of £45,000 in the net profits, which was absorbed by the payment of a higher dividend (8 per cent., against 7 per cent.) on an increased amount of ordinary shares. The balance forward is slightly larger at £265,950.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended February 19 amounted to £79,556, an increase of £5,911 compared with the corresponding week of last year. The route length was 165.55 miles, as compared with 165.78 a year ago. From April 1 (the commencement of the financial year) to February 19 (46 3-7 weeks) the total receipts were £3,885,599, an increase of £67,589.

Municipal Transport Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended February 1 give total receipts of £409,986, or £27,611 more than in the corresponding week of last year. The aggregate receipts for 44 weeks amounted to £18,307,342, an increase of £833,931 over the corresponding period of last year.

An East London Reconstruction.—Walthamstow Council proposes to spend £7,000 on reconstructing the track in Woodford New-road.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

Name.	Week ended	Latest Return. 1929	1930	+ or −	Aggregate. Wks.	1929-30	+ or −
		£	£			£	£
Aberdare U.D.C.	Feb. 11	429	801	+ 372	45½	27,284	+ 3,002
„ Motor Buses	„ 11	203	287	+ 84	45½	11,812	+ 1,862
„ Total	„ 11	632	1,088	+ 456	45½	39,096	+ 4,924
Aberdeen Corp.	„ 12	4,036	4,316	+ 280	45½	185,254	+ 15,270
Ashton-u-Lyne Corp.	„ 1	806	865	+ 59	44	40,322	+ 1,576
„ Motor Buses	„ 1	436	476	+ 40	44	21,393	+ 2,877
„ Trolley Buses	„ 1	280	270	− 10	44	12,420	− 666
„ Total	„ 1	1,522	1,611	+ 89	44	74,135	+ 3,787
Ayr Corporation	„ 15	382	396	+ 14	39	23,675	+ 1,428
Barrow Corporation	Jan. 25	505	497	− 8	43	25,557	− 3,088
„ Motor Buses	„ 25	291	338	+ 47	43	16,709	− 7,196
„ Total	„ 25	796	835	+ 39	43	42,266	+ 4,108
Belfast City	Feb. 14	10,289	10,609	+ 320	45½	510,917	+ 82,506
„ Motor Buses	„ 14	877	1,317	+ 440	45½	51,063	+ 34,567
„ Total	„ 14	11,166	11,926	+ 760	45½	561,980	+ 117,073
Birkenhead Corp.	„ 16	1,442	1,422	− 20	46	75,478	− 10,070
„ Motor Buses	„ 16	2,561	3,017	+ 456	46	162,403	+ 30,627
„ Total	„ 16	4,003	4,439	+ 436	46	237,881	+ 20,557
Birmingham Corp.	„ 11	26,641	26,536	− 105	45	1,237,354	− 17,370
„ Motor Buses	„ 11	11,357	14,560	+ 3,203	45	610,064	+ 109,257
„ Trolley Buses	„ 11	545	563	+ 18	45	25,595	+ 702
„ Total	„ 11	38,543	41,659	+ 3,116	45	1,873,013	+ 127,419
Blackburn Corp.	„ 12	1,765	1,711	− 54	45½	87,910	− 4,833
„ Motor Buses	„ 12	Nil	303	+ 303	14½	5,057	+ 5,057
„ Total	„ 12	1,765	2,014	+ 249	45½	92,967	+ 224
Bradford Corporation	„ 15	12,826	14,810	+ 1,984	46	682,888	+ 37,665
Brighton Corporation	„ 16	1,711	2,055	+ 344	46	119,388	+ 3,462
Burnley Corporation	„ 15	2,598	2,732	− 134	...	...	...
„ Motor Buses	„ 15	564	621	+ 57	...	...	...
„ Total	„ 15	3,162	3,353	− 77	...	...	...
Burton-on-Trent Cpn.	„ 16	397	797	+ 400	46	24,624	+ 5,419
Bury Corporation	„ 16	1,704	1,721	+ 17	46	91,147	− 9,049
„ Motor Buses	„ 16	267	879	+ 612	46	28,208	+ 11,217
„ Total	„ 16	1,971	2,600	+ 629	46	119,355	+ 2,168
Cardiff Corporation	„ 8	6,909	7,369	+ 460	44½	347,189	+ 6,938
Chatham and District	„ 13	879	963	+ 84	6	6,641	+ 352
Chesterfield Corp.	„ 17	1,791	1,957	+ 166	46	91,534	+ 3,634
Colchester Corp.	„ 19	376	535	+ 159	47	26,183	+ 4,934
Colne Corporation	„ 12	687	615	− 72	46	32,087	+ 221
Coventry Corporation	„ 16	1,897	2,034	+ 137	46	98,875	+ 2,354
„ Motor Buses	„ 16	1,330	1,791	+ 461	46	70,913	+ 20,542
„ Total	„ 16	3,227	3,825	+ 598	46	175,788	+ 22,796
Darlington Corp.	„ 15	951	998	− 47	45½	46,222	+ 1,337
Derby Corporation	„ 15	2,296	2,357	+ 61	46	115,175	− 3,168
„ Motor Buses	„ 15	584	857	+ 273	46	35,433	+ 14,689
„ Total	„ 15	2,880	3,214	− 334	46	150,608	+ 11,521
Dover Corporation	„ 15	282	340	+ 58	46	18,802	+ 636
Dundee Corporation	„ 11	3,199	3,273	+ 74	38½	134,546	+ 5,307
East Ham Corp.	„ 15	2,052	2,263	+ 211	45½	105,869	+ 4,961
Edinburgh Corp.	„ 8	12,534	13,463	+ 929	38½	557,526	+ 22,915
„ Motor Buses	„ 8	2,939	3,436	+ 497	38½	134,913	+ 15,725
„ Total	„ 8	15,473	16,899	+ 1,426	38½	692,439	+ 38,640
Exeter Corporation	„ 19	659	709	+ 50	47	39,963	+ 709
Glasgow Corporation	„ 15	39,526	43,081	+ 2,555	37	1,649,912	+ 23,899
„ Motor Buses	„ 15	4,731	7,114	+ 2,383	37	228,429	+ 17,655
„ Total	„ 15	44,257	50,195	+ 5,938	37	1,878,341	+ 41,554
Gloucester Corp.	„ 19	440	623	+ 183	46½	28,226	+ 2,627
Grimsby Corporation	„ 15	1,229	1,409	+ 180	46	67,426	+ 6,215
Halifax Corporation	„ 11	3,990	4,969	+ 979	45½	215,307	+ 17,930
Huddersfield Corp.	„ 15	5,543	6,175	+ 632	46	295,255	+ 4,025
Hull Corporation	„ 15	5,660	5,705	+ 45	46	279,256	+ 1,608
„ Motor Buses	„ 15	1,220	1,440	+ 220	46	65,609	+ 8,736
„ Total	„ 15	6,880	7,145	+ 265	46	344,865	+ 10,344
Ilford Corporation	„ 15	1,274	1,432	+ 158	45½	69,157	+ 1,516
Ipswich Corp. Trol.Bus	„ 15	1,061	1,199	+ 138	46	59,464	+ 4,097
Isle of Thanet	„ 12	301	308	+ 7	6½	2,131	+ 116
Kilmarnock Corp.	„ 15	402	463	+ 61	39½	18,081	+ 1,374
Lancashire Un.	„ 9	2,258	2,132	− 126	5½	12,883	− 160
„ Motor Buses	„ 9	3,711	4,411	+ 700	5½	26,147	+ 4,949
Leeds Corporation	„ 15	16,596	18,836	+ 2,240	45½	909,274	+ 30,635
Leicester Corp.	„ 15	7,289	8,008	+ 719	46	389,317	+ 19,518
Lincoln Corp.	„ 9	843	858	+ 15	45	41,851	+ 1,847
Liverpool Corp.	„ 15	26,031	28,279	+ 2,248	45½	1,386,079	+ 29,002
London County Coun.	„ 19	73,645	79,556	+ 5,911	46½	3,885,599	+ 67,589
Luton Corporation	„ 12	320	357	+ 37	45½	18,513	+ 1,184
Maidstone Corp.	„ 13	170	82	− 88	45½	8,643	− 3,190
„ Motor Buses	„ 13	221	290	+ 69	45½	14,603	+ 4,288
„ Trolley Buses	„ 13	249	331	+ 82	45½	13,987	+ 1,777
„ Total	„ 13	640	703	+ 63	45½	37,233	+ 2,785
Manchester Corp.	„ 15	30,598	33,786	+ 3,188	46	1,611,083	+ 17,860
„ Motor Buses	„ 15	4,099	5,230	+ 1,131	46	229,154	+ 34,713
„ Total	„ 15	34,697	39,016	+ 4,319	46	1,840,237	+ 52,573

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS—*Continued.*

Name.	Week ended	Latest Return. 1929	1930	+ or −	Aggregate. Wks.	1929-30.	+ or −
		£	£	£		£	£
Middlesbrough Corp.	Feb. 18	983	1,108	+ 125	46½	52,734	− 260
„ Motor Buses	„ 18	449	566	+ 117	46½	24,707	+ 3,820
„ Total	„ 18	1,432	1,674	+ 242	46½	77,441	+ 3,560
Newcastle-on-Ty. Corp	„ 15	8,273	8,080	− 407	46	452,994	+ 20,167
„ Motor Buses	„ 15	1,595	2,148	+ 553	46	93,510	+ 8,686
„ Total	„ 15	9,868	10,828	+ 960	46	546,504	+ 28,853
Newport Corporation	„ 8	1,565	1,616	+ 51	45	76,279	+ 527
„ Motor Buses	„ 8	652	727	+ 75	45	34,586	+ 2,417
„ Total	„ 8	2,217	2,343	+ 126	45	110,855	+ 2,944
Northampton Corp.	„ 14	1,217	1,020	− 197	45½	51,335	− 15,175
„ Motor Buses	„ 14	366	638	+ 272	45½	30,816	+ 16,442
„ Total	„ 14	1,583	1,658	+ 75	45½	82,151	+ 1,267
Nottingham Corp.	„ 13	5,971	6,067	+ 96	45½	298,027	− 10,442
Motor Buses	„ 13	2,013	2,962	+ 949	45½	115,232	+ 27,295
„ Trolley Buses	„ 13	537	586	+ 49	45½	27,310	+ 1,670
„ Total	„ 13	8,521	9,615	+ 1,094	45½	440,569	+ 18,523
Oldham Corporation	„ 15	3,006	3,332	+ 326	47	168,491	− 14,803
„ Motor Buses	„ 15	1,611	1,950	+ 339	47	94,678	+ 27,239
„ Total	„ 15	4,617	5,282	+ 665	47	263,169	+ 12,436
Plymouth Corp.	„ 15	2,982	3,117	+ 135	45½	172,151	− 2,952
„ Motor Buses	„ 15	1,562	1,978	+ 416	45½	93,152	+ 14,062
„ Total	„ 15	4,544	5,095	+ 551	45½	265,303	+ 11,110
Portsmouth Corp.	„ 15	4,411	5,464	+ 1,053	46	293,479	+ 13,213
Preston Corporation	„ 12	1,601	1,551	− 50	45½	78,492	+ 1,041
„ Motor Buses	„ 12	434	472	+ 38	45½	22,786	+ 2,839
„ Total	„ 12	2,035	2,023	− 12	45½	101,278	+ 3,880
Rawtenstall Corp.	„ 16	735	770	+ 35	46	39,028	− 2,010
„ Motor Buses	„ 16	407	507	+ 100	46	24,116	+ 3,328
„ Total	„ 16	1,142	1,277	− 135	46	63,144	+ 1,318
Reading Corporation	„ 13	1,349	1,429	+ 80	46	70,199	+ 516
„ Motor Buses	„ 13	760	847	+ 87	46	42,459	+ 2,698
„ Total	„ 13	2,109	2,276	+ 167	46	112,658	+ 3,214
Rochdale Corp.	„ 15	2,575	2,545	− 29	...	131,998	− 12,519
„ Motor Buses	„ 15	1,181	1,563	+ 381	...	73,130	+ 11,510
„ Total	„ 15	3,756	4,108	+ 352	...	205,128	− 1,009
Rotherham Corp.	„ 10	2,400	2,733	+ 333	46	126,671	+ 10,682
Salford Corporation	„ 16	9,282	11,069	+ 1,787	46	518,422	+ 35,332
Shetfield Corp.	„ 15	18,148	20,614	+ 2,166	46	965,695	+ 32,846
Southampton Corp.	„ 12	2,903	3,100	− 197	46	156,782	+ 8,650
„ Motor Buses	„ 12	592	833	+ 241	46	37,031	+ 10,154
„ Total	„ 12	3,495	3,933	+ 438	46	194,413	+ 18,804
Southend-on-Sea Corp.	„ 19	1,583	1,824	+ 241	45½	111,836	+ 1,051
Southport Corp.	„ 15	1,229	1,358	+ 129	45½	77,618	+ 511
St. Helens Corp.	„ 11	1,861	2,027	+ 166	45½	93,144	+ 6,479
Sunderland Corp.	„ 16	1,951	2,284	+ 333	46	112,151	+ 4,767
Swindon Corp.	„ 12	528	831	+ 303	45½	37,812	− 11,073
Wallasey Corp.	„ 15	1,041	1,047	+ 6	45½	59,638	− 35,508
„ Motor Buses	„ 15	1,424	1,770	+ 346	45½	95,430	+ 53,673
„ Total	„ 15	2,465	2,817	+ 352	45½	155,068	+ 18,165
Walsall Corporation	„ 9	3,228	3,547	+ 319	45	156,348	+ 13,686
Walthamstow Corp.	„ 15	1,921	2,273	+ 352	46	112,095	+ 8,251
Warrington Corp.	„ 13	886	855	− 31	46	41,179	− 968
„ Motor Buses	„ 13	437	448	+ 11	46	21,197	+ 3,363
„ Total	„ 13	1,323	1,303	− 20	46	62,376	+ 2,395
West Ham. Corp.	„ 13	5,313	5,971	+ 658	45½	279,177	+ 25,295
Wolverhampton Corp.	„ 9	Nil	Nil	Nil	45	Nil	− 15,958
„ Motor Buses	„ 9	2,643	2,352	− 291	45	125,218	+ 16,433
„ Trolley Buses	„ 9	3,055	3,668	+ 613	45	152,544	+ 25,170
„ Total	„ 9	5,698	6,020	+ 322	45	277,762	+ 25,615
York Corporation	„ 12	874	905	+ 31	46	48,019	+ 400
„ Motor Buses	„ 12	331	484	+ 153	46	19,574	+ 4,719
„ Total	„ 12	1,205	1,389	+ 184	46	67,593	+ 5,119

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

Name.	Week or M'th.	Latest Return. 1928-29.	1929-30.	Aggregate. Wks. or *Ms.*	1929-30.	In. or Dec.
Anglo-Argentine	Feb. 18	£81,113	£83,091	7 w	£585,190	− £13,381
Brazilian Traction $	Dec.	3,673,543	3,984,311	12 *m*	49,351,215	+ 6,576,402
British Columbia $	Dec.	1,228,405	1,255,522	6 *m*	7,251,473	+ 400,835
Buenos Aires Lacroze	Feb. 16	13,196	12,702	33 w	383,044	− 22,922
Burma E. Sup. Co. Rs.	Jan.	61,372	62,533	6 *m*	375,870	− 26,062
Calcutta ... Rs.	Feb. 15	126,076	122,746	64 w	815,023	− 84,473
Cape Town	Jan.	31,777	31,036	...	...	...
Carthagena & Herrerias	Jan.	732	1,351	1 *m*	1,351	+ 619
Durban	Dec.	26,123	25,452	5 *m*	120,976	+ 2,106
East India	Jan.	3,562	3,553	6 *m*	23,535	+ 725
Kalgoorlie	Nov.	1,721	1,643	11 *m*	18,817	− 360
La Plata	Dec.	10,300	10,327	12 *m*	116,149	+ 2,504
Madras (2 weeks) Rs.	Feb.	42,641	49,195	6 w	143,506	+ 9,470
Para	Jan.	14,028	14,556	2 *m*	29,043	+ 655
Port Elizabeth ...	Jan.	9,293	9,016	...	...	...
Rangoon ... Rs.	Jan.	116,835	155,080	1 *m*	155,080	+ 38,245
Shanghai ... $	Jan.	319,220	363,400	1 *m*	363,400	+ 44,180
Singapore ... ...$	Jan.	115,000	139,000	4 *m*	527,000	+ 81,000
Winnipeg ... ...$	Dec.	586,264	641,362	12 *m*	6,635,237	+ 448,374

RAILWAY RECEIPTS.

7th Week ended Feb. 16th	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week.	Inc. or Dec. to Date.
G.W.R.	180,000	+ 4,000	353,000	+ 42,000	533,000	+ 46,000	+ 56,000
L.M.S.R.	411,000	+ 12,000	871,000	+ 15,000	1,282,000	− 27,000	— 90,000
L.N.E.R.	285,000	+ 12,000	715,000	− 43,000	1,000,000	− 55,000	+ 74,000
S.R.	251,000	+ 18,000	107,000	+ 1,000	358,000	+ 19,000	+ 46,000
Totals	1,127,000	− 46,000	2,046,000	− 101,000	3,173,000	+ 147,000	+ 86,000

ELECTRIC RAILWAYS.

Name.	Week Ended.	Latest Return. 1929.	1930.	+ or −	Aggregate. 1930.	+ or −
London Underground						
Common Fund Cos.	Feb. 15	244,100	288,200	+ 44,100	1,960,600	+ 205,300
Lond. & Sub. Group	„ 15	33,400	41,300	+ 7,900	285,600	+ 40,500
Metropolitan Railway	„ 15	33,300	35,800	+ 2,500	255,300	+ 12,000
Liverpool Overhead	„ 16	1,491	1,421	− 70	10,855	− 254
Mersey Railway	„ 15	4,217	4,429	+ 212	33,644	+ 1,235

Digitized by Google

THE
Tramway and Railway World

FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.
Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates—
FOR THE UNITED KINGDOM—Twenty-five shillings per annum.
FOR ALL PLACES ABROAD—Twenty-five shillings per annum. Postage to Canada, 6s.; to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS.

LONDON, MARCH 1, 1930.

RESEARCH IN THE TRANSPORT INDUSTRY.

The appointment of Sir Harold Hartley to the new dual position of vice-president for works and director of scientific research of the L.M.S. Railway is a belated recognition by the senior form of rail transport that it has been neglectful in the past. Railways and tramways teem with problems that call for research, and it is astonishing that the industries did not seize the opportunity of setting up research associations under the Government scheme of the Department of Scientific and Industrial Research. That department was instituted in 1919, and financial grants have been available during the inaugural period of the work of such associations. The awakening of the L.M.S. Railway is doubtless due to the new president, Sir Josiah Stamp, having felt the need of advice not yet available in the elucidation of problems that engage his attention. Now there is evidently to be no stinting of men or effort for an advisory council of eminent scientists is to be set up under the chairmanship of Sir Harold Hartley. It is further officially stated that Sir Harold's activities will include the chemical, metallurgical and physical sides of the organisation, in addition to the supervisory duties covering civil, mechanical, marine, signal and telegraph engineering which were carried out by his predecessor in the vice-presidency. The new vice-president is also to proceed a stage further with the rationalisation of the railway workshops. In view of the highly satisfactory results of research in other industries the ultimate success of this new appointment is not to be doubted. Probably no scientific and industrial research under the Government scheme has achieved more encouraging results than those credited to the association representing electrical engineering. Mr. Emile Garcke recently mentioned some huge savings that have been effected in consequence of the electrical investigations. In deciding to form an advisory council Sir Harold Hartley shows an expert appreciation of the requirements. Such appreciation was to be expected from one who, since he took a first-class in natural science at Oxford, has had a romantic career in war-time science and subsequently in the pursuit of science for the benefit of industry. The advantages that the L.M.S. Railway may expect from the aid of the scientists have been experienced on a not insignificant scale from a research department set up for the companies comprised in the London Underground Group. The need for similar work exists in connection with the tramways of Great Britain. Their owners have been given a lead in this matter by the motor industry since 1920, and the Society of Motor Manufacturers and Traders has recorded that important problems have been attacked and considerable benefit has been obtained as a result.

TROLLEY OMNIBUS DEVELOPMENT AT NOTTINGHAM.

On February 23 Nottingham Corporation inaugurated the new trolley omnibus route on St. Ann's Well-road and Wilford-road. The service is provided by six-wheel double-deck omnibuses of luxurious type, seating sixty passengers each. Members of the Passenger Transport Committee, officials, and guests travelled over the route and expressed satisfaction both with the comfortable riding and flexibility of the vehicles.

At a luncheon afterwards, Mr. John Aldworth, the former general manager, proposed success to the city's latest development. Commenting on the new vehicles, he said the Committee had made a wise choice of system. Mr. Aldworth added that when trolley omnibuses were first tried in Nottingham they proved an immediate success, and he thought the new route would prove equally satisfactory.

Alderman A. Turney, chairman of the Transport Committee, said that they had to face the fact that although the tramcar was still the "supreme crowd-shifter," the time had come when flexibility and speed were two factors of which they had to take more notice. In Nottingham they had twenty-four trolley omnibuses, and the newest vehicles were the best examples that the manufacturers could offer. The Corporation were putting forward a Bill for further powers to convert the whole of their system into trolley omnibus routes as time went on. No municipality of the size of Nottingham, it was safe to say, had done anything approaching what they had done, and within the next ten years it was very likely that Nottingham would have the most up-to-date system of trolley omnibuses in the country.

Mr. W. G. Marks, the general manager, spoke in appreciative terms, from the point of view of an official, of the keen interest shown in the undertaking by the Committee. The Corporation now had 200 tramcars, 24 trolley omnibuses, and 102 petrol omnibuses.

The new route is just over three miles long and the distance is covered in twenty-one minutes. The conversion of the route to the trolley omnibus system with the new vehicles has cost £29,000.

WORKERS IN SHELTERED TRADES.

At a meeting of the Glasgow Chamber of Commerce on February 23 a discussion took place on the subject of municipal sheltered trade workers. Mr. Sam Mavor, referring to a request that Glasgow tramwaymen should have a reduction in weekly working hours and payment during the twelve days' holiday instead of eight days, said that the position of municipal employees was already a highly privileged one, compared with the workpeople of the competitive trades. The burdens of the privileges of the sheltered trades must ultimately fall on the competitive trades, and these burdens should not at this time be increased. The standard of living of the workpeople in the sheltered trades was already considerably higher than could be afforded by the competitive trades in the privately-owned industries. The unfairness and the unwise policy of further increasing the privileges of the sheltered trades, and so imposing increased hardships on the competitive trades, was manifest.

The wage rate of the skilled engineer in Glasgow, Mr. Mavor added, corresponded to that of the municipal scavenger. Such a position was quite indefensible. The competition in the foreign markets had not allowed of an increase in the engineers' wage rate, and on social as well as industrial grounds it was inadvisable that the relative position of the engineer should be worsened by further raising the privileged position of the sheltered trades.

Mr. A. Mitchell said that the Chamber had already been dealing with this subject for a very long period, but little attention seemed to have been paid to it all over the country. It seemed to him that there should be some kind of National Board to deal with the adjustment in municipalities, etc.

Brighton Main Line Electrification.—At the annual meeting of the Southern Railway on February 27 the Hon. Everard Baring (chairman) announced that the electrification of the main line to Brighton and Worthing would be completed in 1932, and would cost £2,700,000. The bulk of the outlay would be met from the remission of passenger duty by the late Government. In order to cover the increased cost of the additional mileage to be run it would be necessary to increase the traffic receipts by 6 per cent. During the past year the company had come to an understanding with many of the large omnibus undertakings, in which the railway company had invested £1,038,000. They had every reason to expect a good return upon the investment.

Digitized by Google

THE ROAD TRAFFIC BILL.

COMMITTEE STAGE BEGUN.

The Standing Committee of the House of Commons, which is considering the Road Traffic Bill, met on Thursday under the chairmanship of Sir Hugh O'Neill. It is anticipated that the Committee stage will last several weeks.

An amendment to make Part I of the Bill applicable to horse-driven vehicles as well as to motor vehicles was rejected. Mr. Morrison, the Minister of Transport, stated that Part I of the Bill had been framed with special regard to motor traffic. Penalties were provided for other kinds of traffic in other statutes.

Mr. R. W. Smith moved that tramway and trolley cars should be included in Part I for the purpose of imposing more severe regulations against dangerous driving of these vehicles.

Sir J. Melville, the Solicitor-General, opposed the amendment on behalf of the Government, and pointed out that tramways and trolley vehicles were controlled by special Acts, and it was unnecessary to include them in the Bill.

Colonel Ashley thought that trolley vehicles might be even more dangerous than motor cars.

Mr. Morrison said tramway services were semi-disciplined services, somewhat analagous to railways, and were not a problem to be dealt with in the Bill. Trolley vehicles could be dealt with in the same way as other vehicles, according to the terms of special Acts. The amendment was rejected.

In a further discussion on trolley vehicles, Major Glyn asked that the Bill should state the law definitely with regard to these vehicles. The sub-section now in the Bill was legislation by reference, and unintelligible to the layman.

Mr. Morrison agreed to consider the question, and, if it were found desirable, to move an amendment at the report stage to define the position of trolley omnibuses.

Sir B. Peto desired to include in the classification of motor vehicles motor lorries with trailers fitted with pneumatic tyres, which should be allowed to travel at the same speed as motor omnibuses carrying passengers. His object was to enable agricultural produce and goods of a perishable character to be carried more quickly on heavy road vehicles than the existing classifications and speed limits in the Bill would permit.

Mr. Morrison thought it would be unwise to add to the types of vehicles which should use trailers, but he promised that the question would be further considered.

The Committee adjourned until next Tuesday.

In the House of Commons on Tuesday Mr. Morrison, the Minister of Transport, on the report of the money resolution relating to the Road Traffic Bill, said he had not yet come to anything like definite, or even provisional conclusions, as to the type of persons who would be appointed as traffic commissioners, certifying officers and examining officers. What he was concerned about was that they should answer certain characteristics. The Chairman of the Commissioners should have business ability, administrative sense, impartiality, be able to weigh evidence, and, generally speaking, he ought to have a good sense of fairness and justice between one party and another.

PERSONAL.

Westinghouse Brake & Saxby Signal Company, Ltd.—At a meeting of the board, the following appointments were made: Mr. H. G. Brown, managing director, to be deputy-chairman; Capt. B. H. Peters, general manager to be managing director; Mr. W. H. Powell, general business manager to be general manager; Mr. J. Griffiths-Hall to be secretary in place of the late Mr. R. Pain.

Mr. J. Christie, borough electrical engineer and manager of the Brighton electrical supply department, has tendered his resignation. He has been in the service of Brighton Corporation for thirty years. It has been suggested by the General Purposes Committee that Mr. Christie should continue to act as consulting engineer at a salary of £1,000 until such time as a superannuation scheme is introduced.

Mr. H. E. Blakiston has been appointed borough electrical engineer at West Hartlepool, in succession to Mr. J. H. Parker, at a salary of £1,125 per annum. He has also been appointed general manager of the Corporation Transport Department at an additional salary of £150 per annum. Mr. Blackiston was deputy borough electrical engineer at Bermondsey since 1928. Between 1919 and 1928 he was a sub-station superintendent of the London County Council Tramways and for several years was with the Cleveland and Durham Electric Power Co. and the South Wales Electric Power Co.

Mr. P. Baron, who was in January last appointed as a demonstrator salesman to Alloy Welding Processes, Ltd., joined the Lytham St. Annes Corporation Tramways in 1912, where he was first assistant to Mr. H. W. Laing, manager and engineer, and he obtained his first permanent way experience under Mr. S. Butler, now permanent way engineer of Bury Corporation Tramways. From 1916 to 1919 Mr. Baron served in the R.N.A.S., and immediately after the War obtained his first experience of welding, with Alloy Welding Processes, Ltd. He was appointed permanent way engineer to the Lytham St. Annes Corporation Tramways in 1922, where he made great use of welding in its application to permanent way and fitting shop practice. He has made a special study of welding, and has visited practically every large tramway centre in England at various times when they have been carrying out any special welding work in any department, but especially on trackwork. Having joined Alloy Welding Processes, Ltd., Mr. Baron will call on tramway engineers, and hopes to assist them with their welding problems.

MISCELLANEOUS NEWS AND NOTES.

Leeds Watch Committee has again refused to grant an omnibus conductor's licence to a woman.

Late Omnibus Fares at Bournemouth.—The minimum fare per passenger on the late omnibuses of the Bournemouth Corporation Tramways (from twelve midnight) will be 6d.

The Channel Tunnel.—In the House of Commons on Wednesday, the Lord Privy Seal stated that he had reason to believe that the report of the Channel Tunnel Committee would be completed this week.

The Birmingham Corporation Act, which recently received Royal Assent, was amended in the House of Lords by the deletion of clauses relating to the manufacture of motor omnibuses and trolley vehicles.

At Maidstone trolley omnibuses have taken the place of the tramcars on the Loose route. Col. Trench, on behalf of the Minister of Transport, recently inspected the line and the new omnibuses, of which six have been delivered.

Railway Trucks for Motor Cars.—The Great Western Railway proposes to build 100 special trucks for conveying new motor cars from the makers at Birmingham and Oxford to all parts of the country and to the docks for export.

The Minister of Transport has sent a letter to all local authorities in England and Wales stating that a condition of all grants from the Road Fund towards the cost of works for the relief of unemployment is that materials should, so far as practicable, be of United Kingdom origin.

Musselburgh and District Electric Light and Traction Co. has suggested to Edinburgh Corporation that they should purchase the company's tramway line between Joppa and Port Seton, and also the company's interest in the omnibus service between Edinburgh and Port Seton.

Omnibus Overturned at Sheffield.—A double-deck omnibus belonging to Sheffield Corporation, overturned in Ridgeway-road, Sheffield, on February 19. The vehicle skidded on the ice-covered road, turned completely round, and heeled over. Five passengers and the conductor received injuries.

L.C.C. Vestibule Car.—The London County Council has put into service on three months' trial a tramcar with vestibule platforms. Each platform is screened with non-splinterable glass. The car is running at present on the Embankment, and Victoria services from Clapham, but will later probably be tried on other routes.

Further Electrification in Melbourne.—An increase of £750,000 in its borrowing powers has been granted to Melbourne and Metropolitan Tramways Board. The money is to be expended on the conversion of the North Fitzroy and South Melbourne cable tramways to electric traction, the duplication of several other tracks, and the provision of equipment.

Omnibus Struck by Falling Trolley Wire.—An omnibus belonging to the Northern General Motors, Ltd., Arbroath, was travelling eastwards on February 22 along Broughty Ferry-road when a trolley wire broke. In falling the wire became entangled with the off front mudguard of the omnibus, which was torn off and two panes of glass in the door and the driving mirror of the omnibus were broken. No one was injured.

Conciliation at Hull.—There is a prospect of an amicable settlement being reached between the Hull Tramways Committee and the volunteer employees of the general strike period. These men, on being threatened with notice to quit the tramway service, took legal action. An interim injunction was obtained in the High Court restraining the Corporation from dispensing with the services of the men. No date has yet been fixed for the hearing of the action.

The Metropolitan Electric Tramways, Ltd., is to equip 60 cars with high-speed motors, cross seats, improved lighting, etc., at a cost of £37,000. Roof covers are to be fitted to 79 double-deck cars at a cost of £25,000. Seventy-two cars are to be reconditioned and provided with cross seats and improved illumination at a cost of £42,000. Additional feeders to connect track with new sub-stations are to be provided at a cost of £4,330.

Manchester Appeal to Motorists.—The General Purposes Committee of Manchester Corporation, in view of the decision to withdraw from the Parliamentary Bill the clause which would make it compulsory for motorists to bring their cars to a stop when tramcars are setting down or picking up passengers, has decided to appeal to the various motoring organisations to show special regard for the comfort and safety of tramway passengers.

Glasgow's Invitation to Berlin.—On behalf of the Tramways Committee, the town clerk of Glasgow has written to Herr Reuter, chairman of the Berlin Transport Committee, thanking him and his colleagues for their kind reception of the Glasgow tramways deputation. An invitation has been extended to Herr Reuter and his committee to visit Glasgow as the guests of the transport department. As the result of the visit to Berlin, a number of valuable suggestions will be embodied in the deputation's report.

The Sunderland Difficulty Settled.—After many discussions, extending over three months, a definite settlement has been reached in the dispute with the Sunderland tramway employees. A modified speeding up programme, proposed by Mr. C. A. Hopkins, the general manager, cutting out waiting time at termini in the centre of the town, has been accepted by the men, and the proposals will come into force on March 5. These arrangements will continue for a month, when a special meeting will be called, at which Mr. Hopkins and the branch officials of the union will be present. The manager has promised that the new scheme will not result in any men being discharged.

Digitized by Google

Manchester-Farnworth Tramway Service.—Salford Corporation and the Lancashire United Transport and Power Co. have made arrangements for a joint tramway service between Manchester and Farnworth.

Headquarters for Technical Societies.—At a dinner of the Institution of the Rubber Industry on February 26, Sir Arnold Wilson outlined a scheme for the building of a central headquarters near Westminster to house a number of learned and technical societies. The cost would be £350,000, towards which nearly £100,000 had been received or promised. The scheme was begun by the Department of Scientific and Industrial Research.

New Type of Omnibus.—Members of the Glasgow Transport Committee have inspected a new double-deck omnibus at Glasgow. Its outstanding features are the straight stairway leading to the centre of the upper saloon, and a commodious and low-loading platform. The vehicle is similar to those which the London General Omnibus Company is constructing especially for rush-hour traffic in London, which was described and illustrated in our issue of February 13.

Free Rides for Old Age Pensioners.—West Ham Town Council has approved the principle of granting passes for free riding on the tramways to old age pensioners over 70 years of age, and has referred the matter to the Tramways Committee. It is estimated that the concession will cost £5,750 a year. Aberdeen Town Council has agreed to give free rides on the tramcars and omnibuses to infirm old age pensioners while going to and from the post offices to draw their pensions.

Broken Down Vehicles on London Streets.—At the meeting of the London County Council on Tuesday, the Special Committee on Traffic reported that the Minister of Transport had forwarded a draft of revised regulations dealing with the removal of vehicles which broke down in streets, and pointed out that it was proposed to provide for the suspension of the existing by-laws, as well as for the retention of the Council's powers under section 52 of the London County Council (Tramways and Improvements) Act, 1909. The section named gives the Council powers for dealing with vehicles which break down on the tramway track. The revised regulations embody the by-laws made by the Council in 1925, and aim at securing the speedy removal of broken down vehicles.

The Electrical Industry.—Mr. V. Watlington, M.B.E., chairman of the B.E.A.M.A., speaking at the annual dinner of the Association of Supervising Electrical Engineers at the Hotel Cecil, on February 22, urged the need for greater co-operation of all sections of the electrical industry. The industry was exporting 25 per cent. of its total production, and anything that would tend to increase exports still further was valuable to the country. Standardisation helped, and supervising engineers should make it a rule always to specify standard machinery and equipment. While the electrical industry was the one bright spot in the industrial situation, it was working at only 60 per cent. of its productive capacity. If they could get the remaining 40 per cent. working, it would help tremendously in lowering prices.

Question of New Cars at Leeds.—Following the decision of the Government not to make a grant towards the cost of 150 cars that Leeds Tramways Committee propose to build, a revision of policy is anticipated. It was hoped that the Unemployment Grants Committee would make a substantial grant towards the cost, which was estimated at £248,000. The Committee, however, were not satisfied that the work would provide definite relief for local unemployment. The Tramways Committee is now considering whether to carry out the plans or modify them. The cars are estimated to cost £2,300 each, but at present only two have been arranged for. Mr. Horsfield, the general manager, has been requested to draw up a report as to the minimum requirements of the department.

Pittsburg's New Street Car.—The latest car constructed for the Pittsburg Street Railways is described as a most important single advance in a new sort of control—" variable-automatic "—with a very quick acceleration secured by four 50 h.p. light-weight motors. The car's maximum performance is made possible by the new control. Acceleration is automatic, and hence very smooth, but the rate of acceleration is under the motorman's control. The car has accelerated and braked at five miles per hour per second without discomfort to passengers. The appearance of the car is novel. The motorman drives through the agency of foot pedals, one pedal controlling the power, and the other the brakes. The car is constructed almost entirely of aluminium, including the trucks, and although 45 feet in length, and seating 42 passengers, it weighs 25,242 lbs.

The London Traffic Problem.—In his speech on Thursday to the proprietors of the various companies associated in the Underground Railway Group, of which a report appears in this issue, Lord Ashfield outlined the attitude of the group in the investigation of the London traffic problem which is being carried out by Sir William McLintock on behalf of the Government. Lord Ashfield said they were prepared to explore all roads which might lead towards the solution of the problem, and to give any Government loyal collaboration in any proposals that they might bring forward, if they were satisfied that such proposals would not be prejudicial to the interests of the proprietors or cause injury to their undertakings. The management must, however, have the same measure of freedom as at present to develop on progressive lines. The average return on the total capital for 1929 of 4·6 per cent. was not a reasonable return in these times, and they could only accept it, he added, as a stage on the way to a more generous return.

ENGLISH ELECTRIC CO., LTD.

FINANCIAL REORGANISATION SCHEME APPROVED.

Meetings of the holders of the debenture stock and shares in the English Electric Co., Ltd., and an extraordinary meeting of the company were held on February 25 at Kingsway Hall, London, W.C.2, to consider the proposed financial reorganisation scheme.

Mr. W. L. Hitchens, the chairman, said that it had been apparent since the heavy losses which were disclosed in the balance sheet for 1927 that financial reorganisation must be undertaken at the appropriate moment. The most urgent need at the time, however, was to reduce the fixed charges, and, as a result of economies effected, the losses, which in 1926 and 1927 were £123,000 and £134,000 respectively, were reduced to £33,000 in 1928. The proposed scheme was comprehensive in character, and would enable important progress to be made. It was clear that the company was over-capitalised, and as a result of the scheme it would be possible to write down the existing capital by £1,755,000. The present scheme would result in a reduction in charges of interest and sinking fund from £182,000 to £72,000 per annum.

Continuing, the Chairman said that the new capital of £750,000, which Messrs. Lazard Bros. would provide, was sufficient not merely to liquidate the indebtedness of the company to its bankers, thereby relieving fixed charges, but also to enable important improvements to be carried out, which would have a material effect in reducing costs. Another necessity was that the company should have a bigger turnover of business. The present scheme would provide strong allies, and unquestioned financial stability. As regards research, the company had suffered in the past because, although much had been done, it had not been able to establish sufficiently close contact with the experimental side of the industry. This defect, which was largely due to lack of money, it would be possible to remedy.

The resolutions were carried without dissent by the requisite majority at all shareholder meetings. The meeting of the holders of the 5½ per cent. sinking fund first mortgage debentures was adjourned for three weeks in the absence of a quorum. At the meeting of the holders of the 6 per cent. convertible debenture stock the resolutions were approved by the necessary majority, but to comply with the requirements of the Court a poll was taken, the result of which will be announced later.

FINANCIAL.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended February 26 amounted to £79,601, an increase of £2,512 compared with the corresponding week of last year. The route length was 165.55 miles, as compared with 166.29 a year ago. From April 1 (the commencement of the financial year) to February 26 (47 3-7 weeks) the total receipts were £3,969,359, an increase of £72,928.

Municipal Transport Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended February 8 give total receipts of £402,829, or £22,653 more than in the corresponding week of last year. The aggregate receipts for 45 weeks amounted to £18,709,544, an increase of £855,494 over the corresponding period of last year.

Singapore's Trolley Omnibus Fleet.—In the report of the Singapore Traction Co. for the year ended September 30 last, it is stated that the fleet consisted of 108 trolley omnibuses and seven motor omnibuses. Further motor omnibuses are to be placed in service. The total length of trolley omnibus routes was increased to 22.31 miles by extensions carried out during the year. The number of vehicle miles run increased by 26.9 per cent., passengers by 19.4 per cent., and receipts by 22.3 per cent. The net profit was £51,098, an increase of £13,839.

Westinghouse Brake & Saxby Signal Co.—Lord Southborough, presiding at the annual general meeting, said that the net profit for the year ended September, 1929, was £102,292, as compared with an average of £101,144 for the four preceding years. For the first four months of the year, both orders and sales had been high, and he was advised that these four months would show highly satisfactory trading profit figures. Prospects for the remainder of the current financial year were good in the sense that a very large volume of signalling work was to be let by the British railways during the next eight months, and they hoped to obtain their proportion of it. The report was adopted and the dividend of 8 per cent., less tax, approved.

BUSINESS NOTES.

Tungsram Electric Lamp Works (Great Britain), Ltd., 72, Oxford-street, London, W.1, announce that their Leeds branch removed on February 24 to larger premises at Britannia House, 74, Wellington-street.

Change of Address.—From March 10 the address of the London office of G. D. Peters & Co., Ltd., and associated companies—the British Power Railway Signal Co. and the Consolidated Brake and Engineering Co., will be 3, Central Buildings, Westminster, S.W.1.

Medical Examination of Omnibus Employees.—The London General Omnibus Company has dismissed a number of omnibus drivers and conductors in consequence of the result of a recent medical examination. The company has issued a statement saying that when the independent companies were taken over it became necessary for the drivers and the conductors to conform to the required standard of fitness. The men have been granted compensation for the loss of employment.

Digitized by Google

LONDON UNDERGROUND GROUP.

LORD ASHFIELD'S REVIEW OF THE PAST YEAR.

The Rt. Hon. Lord Ashfield presided on Thursday at the annual general meeting, held at Caxton Hall, of the proprietors of the following ten companies comprised in the London Underground Group: Metropolitan District Railway Co., London Electric Railway Co., City and South London Railway Co., Central London Railway Co., London General Omnibus Co., Ltd., Metropolitan Electric Tramways, Ltd., London United Tramways, Ltd., South Metropolitan Electric Tramways and Lighting Co., Ltd., London and Suburban Traction Co., Ltd., and the Underground Electric Railways Co. of London, Ltd.

THE CHAIRMAN, in the course of his speech, said: This is the first occasion upon which we have had the representatives of so many companies present at one time, but I am not sure that any one of us would realise that they were the stock and shareholders of not less than ten separate companies met for the transaction of business of importance to London as a whole. The traffic for the year 1929, as measured by the number of passengers, shows some small advance upon that for 1928. The total number of passengers by railway, tramway and omnibus amounted to 2,175 millions. The tramways carried 9 per cent. of this total, the railways 18 per cent., and the omnibuses 73 per cent. These figures bring out in a forcible manner the predominance of the omnibuses within your group of companies. If I look further afield at the whole of the traffic carried by local agencies in Greater London, I find that the omnibus share amounts to about 53 per cent. of the whole. During last year the passengers carried by the railways increased by 7 per cent., those carried by the tramways increased by 4 per cent., and those carried by the omnibuses by just over 1 per cent.

REDUCED TOTAL GROWTH OF PASSENGERS.

Perhaps the most satisfactory feature is the increase in the traffic carried by the tramways. It has been the habit in recent years to depreciate the value of the services rendered by tramways in the carriage of passengers, but we have found that if steps are taken to bring the standard of comfort up to that customary upon the railways and omnibuses, and that if steps are taken to increase the general speed of operation, the passengers by the tramways will increase, proving that tramways serve to deal effectively and economically with considerable volumes of traffic upon the streets. The average speed of operation of our tramways has now turned 10 miles per hour, which, having regard to the growing congestion of the streets, is a not unsatisfactory figure; indeed, as good a record as may be found anywhere. Owing to the predominance of the omnibuses, the increase in the total volume of traffic carried for the year is just over 2 per cent., and I must admit this compares badly with the increases of recent years, which have reached 7 or 8 per cent. In the two preceding years we recorded a growth in the number of passengers carried exceeding 100,000,000 in the year, but this last year this growth has fallen to approximately 49,000,000. The principal cause of this decline was, without doubt, the exceptionally severe weather of January and February, coupled with the influenza epidemic. But if last year started ill, by comparison this year starts well, for the advance that was noted at the close of last year is consistent, and continues into this year. I should warn you that the increases in traffic now shown upon the published weekly returns include for the first time the results for the omnibuses formerly belonging to the London Public Omnibus Company and that some allowance (about two-fifths of the total increase) should be made for this fresh factor.

There has been a falling off in the average receipt per passenger by the omnibuses during the year which has also militated against the largeness of our fortunes. The fall was only three-hundredths of a penny, but if the 1929 passengers had been carried at the 1928 average receipt, instead of at the lower receipt, the gain would have been close upon £200,000. There are several causes which contribute to this decline. There is an abnormal growth in the number of 1d. passengers; there has been some extension of cheap return tickets; but chiefly the decline is due to the falling away of the long distance or excursion passengers. This may be attributable to the large number of wet week-ends that we experienced during the summer months, but we are inclined to think that it is mostly due to another cause.

COACH COMPETITION—PETROL AND VEHICLE TAXES.

While the omnibuses have been restricted and regulated under the terms of the London Traffic Act of 1924, the motor-coach has remained free and has multiplied its services upon all roads leading out of London, carrying on depredatory operation against the omnibuses somewhat unfairly, and trying to establish claims for consideration which should be resisted by the authorities. The Road Traffic Bill now before Parliament will, we expect, bring some redress. In self-defence, we shall be compelled to alter the character of our own widespread country services, working them with fast and improved vehicles and in such a manner as to meet the competition of these new rivals. Yet, in spite of this one adverse factor, the traffic receipts for 1929 amounted in the aggregate to £17,300,000, an increase of £200,000 over 1928, or 1.2 per cent.

Turning to the expenditure side, the best measure of the work done is the car miles run. In 1929, the total car miles run was 281,000,000, an increase of 7,000,000, or 2.5 per cent., over 1928. The passengers increased at a slightly less rate than the car miles. The considerable expansion in services which was undertaken during 1927 and 1928, when car miles increased by over 16 per cent. in the two years, is beginning to bear fruit, but so far as omnibuses are concerned, the expansion continues and the traffic has not yet grown sufficiently to permit of the operating efficiency being improved. In 1929 the miles of road covered by omnibus services increased from 1,029 to 1,122, or by 93 miles. We are still anticipating the traffic that should come to us.

So far as expenditure is concerned, the Omnibus Company had to face an enhanced cost for petrol. The average price paid for petrol, including tax, was 23 per cent. higher in 1929 than it was in 1928. This was due partly to the petrol tax operating over a full year, as against a part year only, and partly to enhanced prices for the commodity itself. The burden of this increase falls with considerable severity upon our omnibus business. Our petrol tax for the year 1929 amounted to £380,000, in itself a serious abstraction of our funds, and entirely apart from the amount which we paid in respect of vehicle duty, amounting to £435,000, so that under these two heads alone the omnibuses contributed to the State £815,000, or almost 7½ per cent. of their gross revenue. No other form of transport makes a like contribution. Except for this one factor, costs were lower, Tyres, for example, cost less, except in so far as pneumatic tyres were substituted for solid tyres at a cost which is nearly treble, and is only fractionally met out of the rebate allowed in taxation. There was also a substantial fall in the cost of coal.

The average wage paid to our employees amounted to £4 3s. 7d. per week, an increase of 1s. 3d. over 1928, so that we can honestly claim not only to have sustained, but even advanced the standard of living of our 45,000 employees, for during the year 1929 the cost of living fell somewhat below that of 1928. We can take the legitimate pride in contemplating this high average weekly wage.

The aggregate operating costs for 1929 amounted to £14,326,000, an increase of £327,000, or 2.3 per cent. The cost per car mile has fallen from 12.27d. to 12.25d., which shows that while on the whole it is unchanged in spite of the increased petrol cost, the tendency is downward still, and that the increase in expenditure is justified by the increase in service. Taken in the aggregate, these figures of car mile cost obscure the substantial savings effected in railway costs, now that the new rolling stock with air-worked doors has replaced completely the manually-operated gate stock. The cost per car mile of operating the railways has fallen from 10d. in 1925 to 8½d. in 1929, or by 15 per cent., and will fall a little further when the surplus staff of the trains can be absorbed in other useful work. These lower costs have been helped by our policy of substituting escalators for lifts, and automatic ticket machines and other devices for dealing with the passengers. During 1929, 17 per cent. of passengers obtained tickets from the machines, and at present over 20 per cent. are making use of these devices.

PROGRESSIVE WORK OF THE RAILWAYS.

A great transformation has been effected in the position of your Railway Companies. Without it, it would have been almost impossible for them to have continued in progressive and satisfactory operation. Even now, with the changes which have taken place, the Railway Companies need assistance through the Common Fund in the payment of the dividends. This great transformation has been effected without loss or injury to the men whom we employ. Rather there has been a gain to them, for with rare exceptions we have been able to pay them higher wages and provide them with more skilled occupation. Our accident record, as compared with 1928, has fallen and in relation to the work performed is the best we have so far had. The number of fatalities in connection with our undertakings, amounted in 1929 to 117 only, out of a total of approximately 1,500 occurring on the streets of London. Only one fatal accident occurred for almost every two and a half million car miles run. In all but two accidents we were exonerated from blame by the coroners' juries. Expenditure on the settlement of claims has fallen to the lowest level so far obtained. The delays on the railways are down to four minutes per 10,000 car miles run. This is another record, and is mainly due to the greater care and attention paid to rolling stock. Only at the power house is our position not so good, and there we are engaged upon its re-equipment with new and improved machinery. I am sure you wish to express your appreciation of all the care and resource which has been put into the task of conducting the operations of your companies to produce these results, and to thank officers and staff for their keen and distinguished service. Except for two minor incidents, our relations with the staff have been excellent, and there has been the closest accord between ourselves, our officers, our employees, and the trade unions, in seeking to improve not one aspect, but all aspects of our operations. We practice, as far as we are able, the co-ordination which we preach outside.

London, in spite of the depression in trade and of the falling birth rate, continues to grow. It is rapidly becoming the place in which the wealth of the country is gained. In 1929, the population within the Metropolitan Police District was estimated to number 7,900,000, and to this must be added the population of the outer ring of 900,000 making 8,800,000 persons as the population focussed upon this one centre. Anyone who travels round London over the new roads cannot fail to be impressed by the blocks of houses that spring up on all sides and by the new factories. At Morden, Edgware and Hounslow, three of the outer districts which we serve, from 1927 to 1929 some 16,500 houses have been added, and the population served by our railways has increased by 70,000 persons. In 1927 the journeys per head of the population were 487; in 1928, 507; and in 1929, 512. Our resources do not grow at the same rate as the possibilities of traffic. London requires more underground railways. Since 1918, this group of companies collectively has spent £29,000,000 upon the provision of traffic facilities, but it is by no means enough. We have been fortunate in being able to expend as much, taking advantage of the provisions made by the Government to aid such

Digitized by Google

expenditure. Once more we are in a position to avail ourselves of an opportunity of the sort, and we have put before the Government a programme for raising and expending £13,500,000 for the extension and completion of our underground railway system.

THE INTERVENTION OF THE GOVERNMENT.

There may come a time when underground railways will have to be found and provided by public authorities just as roads are now found and provided. The construction of such railways leads to the creation of land values which escape entirely the burden of contributing to the agency which has created them. We had thought that if all the local passenger transport undertakings of Greater London were brought within a single scheme, having a common financial interest and a common management, that the fares to be received would be adequate to enable the combined undertakings to develop and expand to a sufficient extent to meet the more urgent needs. The experience of our own common fund warranted us in assuming that a larger common fund would be more successful. We never assumed that this scheme was a final or complete solution of our problems. Parliament declined to accept our tentative solution, and the Bills promoted last year were rejected. Mr. Herbert Morrison, the Minister of Transport, has told the House of Commons that he realises that this responsibility now rests primarily with his Department. In his own words, " the ends in view can be fully achieved and the public interest can be fully safeguarded only if existing sectional financial interests are consolidated by the substitution of a single and simple form of public ownership for the complicated network of separate interests, private and municipal." He could not state our own aim more clearly. He is seeking " a plan for the complete consolidation upon fair and equitable terms of the passenger transport agencies now providing services by omnibus, by tramway, or by local railways in the London Traffic Area," and he added that the Government " desire to make it clear that their intention and aim will be to assert and effectively to provide for the principle of commercial management of a self-supporting consolidated transport system, thus ensuring the advantages of vigorous business enterprise." Again, our own aim, but with a difference. Since the Government made this announcement in the House of Commons they have appointed Sir William McLintock to investigate the situation and to make proposals as to how effect can be given to their policy. We have been asked to co-operate with Sir William, and we have stated that we are willing to afford him all the facilities he may require in connection with his investigations, though it will, of course, be appreciated that this does not commit your companies in any way, and that the information given to Sir William McLintock must be regarded for the time being as confidential. We are prepared to give to this Government, as to any other Government, our loyal collaboration in any proposals they may bring forward, if we are satisfied that those proposals will not be prejudicial to your interests or cause injury to your undertakings, and at the same time will afford the management the same measure of freedom to act and think for themselves which they now enjoy and will permit these undertakings to remain capable of progressive development.

FINANCIAL RESULTS—THE TRAMWAYS OUTLOOK.

We estimate that in 1929 the companies with which you are directly associated carried 65 per cent. of the local passengers. They also represented 65 per cent. of the capital invested in local means of transport. If the average return paid this last year upon the capital of the transport undertakings in which you are interested is calculated, it turns out to be 4·6 per cent. No one can allege that this is a reasonable or satisfactory return. Fortunately these transport undertakings have traffic potentialities which are still unrealised. I still look forward to securing that reasonable return upon the capital which is the just reward of our shareholders. The Common Fund for 1929 amounted to £1,150,426. It is £22,761 less than it was in 1928, for causes which I have explained. The total amount appropriated to reserves for contingencies and renewals by this group of companies was £813,357, and including certain miscellaneous provisions for the equalisation of expenditure and other purposes, the sums set aside in 1929 amounted altogether to £1,161,676, or £14,128 more than in 1928. This contribution to reserves and so forth represents 7 per cent. of the gross receipts of the group. The aggregate reserves now at the disposal of this group amount to £6,201,326, or almost 10 per cent. of the capital invested in them.

We have made a start in this last year in replacing the post-war fleet of omnibuses with new and improved vehicles capable of higher average speed, affording greater comfort, and, in fact, giving to the every-day passenger all the luxury which the motor-coach proprietor affords to the excursionist. Four hundred and fifty vehicles have been ordered, and some 50 are at work. Further orders will be placed in quick succession until our older type vehicles are removed from the streets. After meeting all the charges falling upon the companies, and after making adequate provision for all our obligations, the Common Fund is sufficient to pay dividends at the rate of 5 per cent. upon the ordinary stocks of the Railway Companies, and at the rate of 8 per cent., free of tax, upon the ordinary shares of the Omnibus Company.

Let us now turn to the results for the three Tramway Companies. In this last year the receipts from traffic have amounted to £1,275,552, an increase of £48,007, or 4 per cent. over 1928. The cars have been re-upholstered and re-equipped so that they afford more comfortable seats and move at a more rapid speed. Estimates are being prepared as to what would seem to be a reasonable immediate expenditure for restoring the reputation for efficiency and progress of our two principal systems.

So far as the Metropolitan Electric Tramways, Ltd., is concerned, our programme must depend upon the negotiations with Middlesex County Council. The negotiations are almost concluded, so that there should be no break in the continuity of our operation of this company. The lease expires at the close of this year. On our London United Tramway system, we need to carry out the reconstruction and re-equipment of our tramways in the Uxbridge-road, to provide new rolling stock for the trunk services, and to substitute trackless trolley vehicles for tramways upon those routes which have a light traffic in Kingston and Surbiton on the Surrey side of the river, and in Teddington on the Middlesex side. Here again we must wait until the Bill now before Parliament becomes an Act. It is hoped that with the assistance of the holding or finance companies, something may be done speedily to restore the tramways to their original position as a definite and valuable factor in the carriage of traffic on the outskirts of London. Steps have been taken, in anticipation of assistance, for the construction of 46 new tramcars, of novel design, for working the Uxbridge-road. These cars will establish a new standard of luxury for public service vehicles, will be equipped with more powerful and efficient electrical gear, and should result in obtaining a substantial increase in the traffic. It may be that we can obtain further assistance from the Government under the Development (Loan Guarantees and Grants) Act of last year towards meeting the interest charges upon a further expenditure to carry out the works. Without assistance we shall scarcely be able to move. In respect of the South Metropolitan Electric Tramways and Lighting Company, it is proposed to pay the full dividend upon the 6 per cent. cumulative preference shares, and a dividend at the rate of 5 per cent. upon ordinary shares.

The London & Suburban Traction Company has a balance available for distribution of £10,480, and it is proposed to add it to the amount carried forward, which will then amount to £46,617. The 5 per cent. " A " debenture stock of this company is being steadily paid off so that the strength of the company grows greater with each year.

Finally, I come to the Underground Company. The gross income amounted in the year 1929 to £1,182,533, an increase of £28,735 over 1928. The expenses of the company required £587,786, a reduction of £16,372. During the year progress has been made in the conversion of income bonds into ordinary shares. There are now outstanding £3,985,010 in income bonds. When all the interest upon these bonds and upon the prior securities has been met in full, and after paying an interim dividend at the rate of 3 per cent. upon ordinary shares in respect of the June half-year, there is a balance available for further dividend of £631,039. Out of this sum your directors recommend the payment of a final dividend at the rate of 5 per cent. upon ordinary shares, making 8 per cent. for the year. This requires £365,089, and leaves £265,950 to be carried forward.

The usual resolutions were put and carried.

CONTRACTS.

Liverpool Tramways Committee has authorised the purchase of a Thornycroft omnibus chassis.

Sheffield Corporation has ordered 500 steel tramcar tyres from Brown Bayleys Steel Works, Ltd.

Warrington Corporation has purchased two six-wheel motor chassis from the Associated Equipment Co., Ltd.

Portsmouth Corporation has accepted the tender of the English Electric Co., Ltd., at £41,760 for switchgear.

The Equipment and Engineering Co., Ltd., has received an order from York Corporation for an omnibus hoist.

Metro-Vick Supplies, Ltd., have contracts from the L.M.S. Railway for electric lamps for twelve months and from the Admiralty for electric lamps.

Dorman Long & Co., Ltd., of Middlesbrough, have received an order from Glasgow Corporation for tramway rails, the amount of the tender being about £26,500.

Johnson & Phillips, Ltd., have an order from the County of London Electric Supply Co., Ltd., for overhead power lines for development in Kent.

The Central Electricity Board has placed a contract with the General Electric Company for six 30,000 K.V.A. 3-phase transformers for the Mid-East England electricity scheme.

Guy Motors, Ltd., are to supply two chassis to Middlesbrough Tramways at £533 each. The two bodies for these chassis are to be made by Mr. W. G. Edmond, Middlesbrough, at £430 each.

Liverpool Corporation has accepted the tender of the Metropolitan-Vickers Electrical Co., Ltd., for the supply of a 50,000-kw. maximum continuous rating turbo-alternator, with accessories, at £187,870.

The British Thomson-Houston Co., Ltd., has received from Liverpool Corporation a contract for the supply of armour-clad switchgear and lighting and distribution boards at £11,000.

Grimsby Electricity Committee has recommended acceptance of the tender of the Metropolitan-Vickers Electrical Co., Ltd., at £31,405, for a 10,000-kw. turbo-alternator and condensing plant.

Crossley Motors, Ltd., have received an order from the Crown Agents for the Colonies for four 20-60 h.p. Crossley light six-wheelers. The vehicles are for use in Kenya, and form the beginning of the mechanisation of the King's African Rifles. Trailers are also being supplied with special tanks for carrying fuel and water.

Glasgow Corporation has placed a contract with the English Electric Co., Ltd., for the new switchboard for the Pinkston power station at an estimated cost of over £32,000. Work has been commenced on the new boiler contract, which was entrusted to John Thompson Water Tube Boilers, Ltd., of Wolverhampton.

Digitized by Google

Bristol Tramways and Carriage Company, Ltd., have received among other recent orders the following for Bristol passenger and commercial vehicles: Shell-Mex, Ltd., four 40 h.p. 4-ton goods chassis; Aberdare Council Tramways, one 32-seat superbus (one-man operated) on a 4-cylinder, 4-wheel passenger chassis; Newcastle (Staffs) Motor Co., Ltd., one 4-cylinder, 4-wheel passenger chassis; Rotherham Corporation, two 4-cylinder 4-wheel passenger chassis; British Petroleum Co., Ltd., twenty 40 h.p. 4-ton goods chassis. Each of these is a repeat order.

The English Electric Co., Ltd., has received three further orders for their electric trolley omnibuses. Pontypridd Council has ordered seven single-deck vehicles mounted on 3-axle type chassis; each omnibus to seat 32. The equipment will consist of a DK.121 60 h.p. motor fitted with roller bearings, and "English Electric" contactor type foot-operated controller. For Southend Corporation the order comprises two double-deck top-covered trolley omnibuses mounted on 3-axle type chassis, with air brakes operating on all wheels. A group system of lubricating points is incorporated in the chassis, making them readily accessible for charging. Each vehicle will seat 59. A special feature of the body is the provision of an extra exit on the near front side, thereby facilitating unloading during rush periods. A further notable feature is the low-loading platform, whereby passengers may enter direct without any step arrangement, the platform being 1 ft. 2 ins. from the ground. The equipment will consist of a DK.122 twin type 80 h.p. motor fitted with roller bearings and contactor type foot-operated controller. From Christchurch, New Zealand, the company has an order for six complete 3-axle trolley omnibus chassis and equipments.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

Name.	Week ended	Latest Return. 1929	1930	+ or —	Aggregate. Wks.	1929-30	+ or —
		£	£	£		£	£
Aberdare U.D.C. ...	Feb. 25	518	524	+ 6	47½	28,350	+ 2,957
„ Motor Buses ...	„ 25	240	278	+ 38	47½	12,357	+ 1 896
„ Total	„ 25	758	802	+ 44	47½	40,707	+ 4,853
Aberdeen Corp. ...	„ 19	3,691	4,173	+ 482	38⅝	189,427	+ 15,752
Ashton-u-Lyne Corp.	„ 22	759	811	+ 52	47	42,794	+ 1,779
„ Motor Buses ...	„ 22	416	444	+ 28	47	22,722	+ 2.969
„ Trolley Buses ...	„ 22	262	257	— 5	47	13,198	— 682
„ Total	„ 22	1,437	1,512	+ 75	47	78,714	+ 4,066
Ayr Corporation ...	„ 22	390	389	— 1	40	24,065	+ 1,427
Barrow Corporation ..	„ 15	500	498	— 2	46	27,053	— 3.206
„ Motor Buses ..	„ 15	255	327	+ 72	46	17,711	+ 7,391
„ Total	„ 15	755	825	+ 70	46	44,764	+ 4,185
Belfast City	„ 21	10,323	10,377	+ 54	46½	520,994	+ 82,560
„ Motor Buses ...	„ 21	910	1,295	+ 385	46½	52,358	+ 34,952
„ Total	„ 21	11,233	11,672	+ 439	46½	573,352	+ 117,512
Birkenhead Corp. ...	„ 23	1,493	1,386	— 107	47	76,864	— 10,177
„ Motor Buses ...	„ 23	2,594	2,846	+ 252	47	165,249	+ 30,878
„ Total	„ 23	4,087	4,232	+ 145	47	242,113	+ 20,701
Birmingham Corp. ...	„ 18	24,806	26,636	+ 1,830	46	1,263,990	+ 19,200
„ Motor Buses ...	„ 18	10,656	14,776	+ 4,120	46	624,841	+ 113,378
„ Trolley Buses ...	„ 18	514	567	+ 53	46	26,161	+ 845
„ Total	„ 18	35,976	41,979	+ 6,003	46	1,914,992	+ 133,423
Blackburn Corp. ...	„ 19	1,728	1,649	— 79	46½	89,559	— 4,900
„ Motor Buses ...	„ 19	Nil	295	+ 295	15½	5,352	+ 5,352
„ Total	„ 19	1,728	1,944	+ 216	46½	94,911	+ 452
Bradford Corporation	„ 22	12,670	13,742	+ 1,072	47	696,630	+ 38,737
Brighton Corporation	„ 23	1,844	2,037	+ 193	47	121,425	+ 3,655
Burnley Corporation...	„ 22	2,669	2,647	— 22	...	...	...
„ Motor Buses ...	„ 22	572	622	+ 50	...	...	...
„ Total	„ 22	3,241	3,269	+ 28	...	...	...
Burton-on-Trent Cpn.	„ 23	724	794	+ 70	46	25,005	+ 5,800
Bury Corporation ...	„ 23	1,856	1,730	— 126	47	92,877	— 9,176
„ Motor Buses ...	„ 23	293	900	+ 607	47	29,108	+ 11,825
„ Total	„ 23	2,149	2,630	+ 481	47	121,985	+ 2,649
Cardiff Corporation ...	„ 8	6,909	7,369	+ 460	44⅝	347,139	+ 6,938
Chatham and District	„ 20	846	990	+ 144	7	7,632	+ 497
Chesterfield Corp. ...	„ 24	1,828	1,949	+ 121	47	93,483	+ 3,755
Colchester Corp. ...	„ 26	402	535	+ 133	48	26,720	+ 5,072
Colne Corporation ...	„ 19	574	631	+ 57	47	33,318	+ 278
Coventry Corporation	„ 23	2,009	2,020	+ 11	47	100,895	+ 2,365
„ Motor Buses ...	„ 23	1,407	1,762	+ 355	47	78,675	+ 20,898
„ Total	„ 23	3,416	3,782	+ 366	47	179,570	+ 23,263
Darlington Corp. ...	„ 22	932	977	+ 45	46½	47,200	+ 1,382
Derby Corporation ...	„ 22	2,286	2,282	— 4	47	117,456	— 3,172
„ Motor Buses ...	„ 22	582	839	+ 257	47	36,272	+ 14,946
„ Total	„ 22	2,868	3,121	+ 253	47	153,728	+ 11,774
Dover Corporation ...	„ 22	292	338	+ 46	47	19,140	+ 682
Dundee Corporation	„ 25	3,229	3,191	— 38	40⅝	140,989	+ 5,468
East Ham Corp. ...	„ 22	2,145	2,288	+ 143	46⅞	108,157	+ 5,152
Edinburgh Corp. ...	„ 15	11,916	13,204	+ 1,288	38½	570,730	+ 24,203
„ Motor Buses ...	„ 15	2,832	3,422	+ 590	38½	138,335	+ 16,316
„ Total	„ 15	14,748	16,626	+ 1,878	38½	709,065	+ 40,519
Exeter Corporation ...	„ 26	729	707	— 22	48	40,671	+ 688
Glasgow Corporation	„ 15	39,526	43,081	+ 2,555	37	1,649,912	+ 23,899
„ Motor Buses ...	„ 15	4,731	7,114	+ 2,383	37	228,429	+ 17,655
„ Total	„ 15	44,257	50,195	+ 5,938	37	1,878,341	+ 41,554
Gloucester Corp. ...	„ 19	440	623	+ 183	46⅜	28,226	+ 2,627
Grimsby Corporation ..	„ 22	1,199	1,416	+ 217	47	68,842	+ 6,446
Halifax Corporation ...	„ 18	3.541	4,871	+ 1,330	46½	220,178	+ 19,260
Huddersfield Corp. ...	„ 22	5,590	6,009	+ 419	47	301,431	+ 4,444
Hull Corporation ...	„ 22	5,565	5,645	+ 80	47	284,902	+ 1,688
„ Motor Buses ...	„ 22	1,204	1,402	+ 198	47	67,012	+ 8,935
„ Total	„ 22	6,769	7,047	+ 278	47	351,914	+ 10,623
Ilford Corporation ...	„ 22	1,359	1,443	+ 84	46⅝	70,600	+ 1,628
Ipswich Corp. Trol.Bus	„ 22	1,073	1,190	+ 117	47	60,652	+ 4,234
Isle of Thanet ...	„ 19	266	324	+ 58	7½	2,456	+ 174
Kilmarnock Corp. ...	„ 22	.413	435	+ 22	40½	19,417	+ 1,396
Lancashire Un. ...	„ 16	2,047	2,106	+ 59	6¼	14,988	— 138
„ Motor Buses ...	„ 16	3,453	4,411	+ 958	6¼	30,558	+ 5,874
Leeds Corporation ...	„ 15	16,596	18,836	+ 2,240	45⅝	901,274	+ 30,635
Leicester Corp. ...	„ 22	7,519	8,164	+ 645	47	397,482	+ 20,219
Lincoln Corp. ...	„ 23	803	836	+ 33	47	43,533	+ 1,909
Liverpool Corp. ...	„ 22	27,194	28,292	+ 1,098	46⅛	1,414,372	+ 30,101
London County Coun.	„ 26	77,089	79,601	+ 2,512	47⅜	3,969,359	+ 72,928
Luton Corporation ...	„ 19	311	353	+ 42	46½	18,867	+ 1,226
Maidstone Corp. ...	„ 20	164	Nil	— 164	46⅛	8,643	— 3,354
„ Motor Buses ...	„ 20	210	236	+ 26	46⅛	14,839	+ 4.314
„ Trolley Buses ...	„ 20	243	495	+ 252	46⅛	14,482	+ 2,028
„ Total	„ 20	617	731	+ 114	46⅛	37,964	+ 2,988
Manchester Corp. ...	„ 22	31,880	33,381	+ 1,501	47	1,644,464	+ 19,361
„ Motor Buses ...	„ 22	4,290	5,296	+ 1.006	47	234,450	+ 35,719
„ Total	„ 22	36,170	38,677	+ 2,507	47	1,878,914	+ 55,080

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS—*Continued.*

Name.	Week ended	Latest Return. 1929	1930	+ or —	Aggregate. Wks.	1929-30.	+ or —
		£	£	£		£	£
Middlesbrough Corp.	Feb. 25	069	1,051	— 18	47½	53,787	— 278
„ Motor Buses ...	„ 25	441	535	+ 94	47½	25,242	+ 3,913
„ Total	„ 25	1,510	1,586	+ 76	47½	79,029	+ 3,635
Newcastle-on-Ty. Corp	„ 22	8,319	8,577	+ 258	47	461,571	+ 20,425
„ Motor Buses ...	„ 22	1,667	2,136	+ 469	47	95,646	+ 9,155
„ Total	„ 22	9,986	10,713	+ 727	47	557,217	+ 29,580
Newport Corporation ..	„ 15	597	715	+ 118	46	35,301	+ 2,535
„ Motor Buses ...	„ 15	1,508	1,578	+ 70	46	77,847	+ 597
„ Total	„ 15	2,105	2,293	+ 188	46	113,148	+ 3,132
Northampton Corp....	„ 21	1,176	1,013	— 163	46⅝	52,349	— 15,209
„ Motor Buses ...	„ 21	375	620	+ 245	46⅝	31,437	+ 16,514
„ Total	„ 21	1,551	1,633	+ 82	46⅝	83,786	+ 1,305
Nottingham Corp. ...	„ 20	5,927	6,118	+ 191	46½	304,146	— 10,249
„ Motor Buses ...	„ 20	2,120	2,985	+ 865	46½	118,217	+ 28,159
„ Trolley Buses ...	„ 20	540	590	+ 50	46½	27,900	+ 1,720
„ Total	„ 20	8,587	9,693	+ 1,106	46½	450,263	+ 19,630
Oldham Corporation...	„ 22	3,178	3,373	+ 195	48	171,864	— 14,608
„ Motor Buses ...	„ 22	1,685	2,001	+ 316	48	96,679	+ 27,555
„ Total	„ 22	4,863	5,374	+ 511	48	268,543	+ 12,947
Plymouth Corp. ...	„ 22	3,113	3,043	— 70	46½	175,194	— 3,022
„ Motor Buses ...	„ 22	1,655	1,971	+ 316	46½	95,124	+ 14,378
„ Total	„ 22	4,768	5,014	+ 246	46½	270,318	+ 11,356
Portsmouth Corp. ...	„ 22	4,706	5,388	+ 682	47	303,966	+ 18,994
Preston Corporation ...	„ 19	1,460	1,528	+ 68	46⅜	80,021	+ 1,109
„ Motor Buses ...	„ 19	398	469	+ 71	46½	23,256	+ 2,910
„ Total	„ 19	1,858	1,997	+ 139	46⅜	103,277	+ 4,019
Rawtenstall Corp. ...	„ 23	745	797	+ 52	47	39,825	— 1,959
„ Motor Buses ...	„ 23	444	543	+ 99	47	24,660	+ 3,427
„ Total	„ 23	1,189	1,340	+ 151	47	64,485	+ 1,468
Reading Corporation	„ 20	1,363	1,391	+ 28	47	71,591	+ 544
„ Motor Buses ...	„ 20	754	853	+ 99	47	43,313	+ 2,796
„ Total	„ 20	2,117	2,244	+ 127	47	114,904	+ 3,340
Rochdale Corp. ...	„ 22	2,609	2,512	— 97	...	134,510	— 12,616
„ Motor Buses ...	„ 22	1,179	1,577	+ 398	...	74,707	+ 11,908
„ Total	„ 22	3,788	4,089	+ 301	...	209,217	— 708
Rotherham Corp. ...	„ 24	2,318	2,710	+ 392	48	132,120	+ 11,565
Salford Corporation ...	„ 23	9,919	1,111	+ 1,192	47	529,533	+ 36,660
Sheffield Corp. ...	„ 22	18,833	20,143	+ 1.310	47	985,838	+ 34,156
Southampton Corp. ...	„ 19	2,911	3,149	+ 238	47	159,931	+ 11,799
„ Motor Buses ...	„ 19	601	852	+ 251	47	38,483	+ 11,006
„ Total	„ 19	3,512	4,001	+ 489	47	198,414	+ 22,805
Southend-on-Sea Corp.	„ 26	1,639	1,798	+ 159	46⅓	113 634	+ 1,210
Southport Corp. ...	„ 22	1,268	1,337	+ 69	46½	78,955	+ 610
St. Helens Corp. ...	„ 18	1,754	1,920	+ 166	46½	95,364	+ 6,645
Sunderland Corp. ...	„ 23	1,946	2.186	+ 240	47	114,338	+ 5,007
Swindon Corp. ...	„ 19	569	849	+ 280	46⅔	38,586	+ 11,279
Wallasey Corp. ...	„ 22	1,114	1,006	— 108	46½	60,644	— 35,616
„ Motor Buses ...	„ 22	1,545	1,791	+ 246	46½	97,221	+ 53,919
„ Total	„ 22	2,659	2,797	+ 138	46½	157,865	+ 18,303
Walsall Corporation ...	„ 16	3,055	3,488	+ 433	46	159,836	+ 14,119
Walthamstow Corp....	„ 22	2,067	2,293	+ 226	47	114,388	+ 8,477
Warrington Corp. ...	„ 20	830	849	+ 19	47	42,028	— 949
„ Motor Buses ...	„ 20	412	442	+ 30	47	21,639	+ 3,393
„ Total	„ 20	1,242	1,291	+ 49	47	63,667	+ 2,444
West Ham. Corp. ...	„ 20	5,319	5,971	+ 652	46½	285,148	+ 25,947
Wolverhampton Corp.	„ 16	Nil	Nil	Nil	46	Nil	— 15,958
„ Motor Buses ...	„ 16	2,518	2,312	— 206	46	127,530	+ 16,227
„ Trolley Buses ...	„ 16	2,929	3,573	+ 644	46	156,117	+ 25,784
„ Total	„ 16	5,447	5,885	+ 438	46	283,647	+ 26,053
York Corporation ...	„ 19	817	901	+ 84	47	48,920	+ 484
„ Motor Buses ...	„ 19	332	457	+ 125	47	20,031	+ 4,844
„ Total	„ 19	1,149	1,358	+ 209	47	68,951	+ 5,328

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

Name.	Week or M'th.	Latest Return. 1928-29.	1929-30.	Aggregate. Wks. or *Ms.*	1929-30.	In. or Dec.
Anglo-Argentine	Feb. 25	£85,069	£83,055	8 w	£668,245	— £15,395
Brazilian Traction $	Jan.	3,892,833	3,862,089	1 m	3,862,089	— 30,744
British Columbia $	Dec.	1,228,405	1,255,522	6 m	7,251,473	+ 400,835
Buenos Aires Lacroze	Feb. 23	13,032	12,030	34 w	395,074	— 23,924
Burma E. Sup. Co. Rs.	Jan.	64,372	62,533	6 m	375,870	— 26,062
Calcutta ... Rs.	Feb. 22	129,218	124,752	7¾ w	939,775	— 88,939
Cape Town	Jan.	31,777	31,036	...	...	...
Carthagena & Herrerias	Jan.	732	1,351	1 m	1,351	+ 619
Durban	Jan.	23,916	24,577	6 m	145,553	+ 2,767
East India	Jan.	3,562	3,553	6 m	23,535	+ 725
Kalgoorlie	Nov.	1,721	1,643	11 m	18,817	— 369
La Plata	Dec.	10,300	10,327	12 m	116,149	+ 2,604
Madras (2 weeks) Rs.	Feb. 15	42,641	49,195	6 w	143,506	+ 9,470
Para	Jan.	14,028	14,556	2 m	29,043	+ 655
Port Elizabeth ...	Jan.	9,293	9,016	...	...	...
Rangoon ... Rs.	Jan.	116,835	155,080	1 m	155,080	+ 38,245
Shanghai ... $	Jan.	319,220	363,400	1 m	363,400	+ 44,180
Singapore ... ...$	Jan.	115,000	139,000	4 m	527,000	+ 81,000
Winnipeg ... ...$	Dec.	586,264	641,362	12 m	6,635,237	+ 448,374

RAILWAY RECEIPTS.

8th Week ended Feb. 23rd	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week.	Inc. or Dec. to Date.
G.W.R.	180,000	+ 1,000	349,000	+ 6,000	529,000	+ 7,000	+ 63,000
L.M.S R.	425,000	+ 14,000	869,000	+ 7,000	1,294,000	+ 21,000	— 69,000
L.N.E R.	288,000	+ 18,000	717,000	+ 40,000	1,005,000	+ 58,000	+ 132,000
S.R.	256,000	+ 20,000	112,000	+ 1,000	368,000	+ 21,000	+ 67,000
Totals	1,149,000	+ 53,000	2,047,000	+ 54,000	3,196,000	+ 107,000	+ 193,000

ELECTRIC RAILWAYS.

Name.	Week Ended.	Latest Return. 1929.	1930.	+ or —	Aggregate. 1930.	+ or —
London Underground Common Fund Cos.	Feb. 22	257,800	290,000	+ 32,200	2,250,600	+ 237,500
Lond. & Sub. Group	„ 22	35,900	41,400	+ 5,500	327,000	+ 46,000
Metropolitan Railway	„ 22	34,000	36,000	+ 2,000	291,300	+ 14,000
Liverpool Overhead	„ 23	1,464	1,470	+ 6	12,325	— 248
Mersey Railway ...	„ 22	4,333	4,563	+ 230	38,207	+ 1,465

Digitized by Google

THE
Tramway and Railway World
FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.
Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates—
FOR THE UNITED KINGDOM—Twenty-five shillings per annum.
FOR ALL PLACES ABROAD—Twenty-five shillings per annum. Postage to Canada, 6s.; to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS

LONDON, MARCH 8, 1930.

SOME RIDING CHARACTERISTICS.

There are aspects of the ever-present "Bus versus Tram" controversy that definitely decide the rider's choice of vehicle, yet the migration of erstwhile tramway riders to the bus has still to be tracked down to fundamental reasons. That it is an advantage of the bus that it takes up passengers at the kerb is the opinion of a large body of observers. Granting this, has the bus any other advantage? Some claim it offers "more comfortable riding." Probing for reasons, it seems they are willing to suffer the vibration, jolting, and gear-change impulses of the bus, not only tolerantly, but preferably to the pitching, rolling and nosing of the tramcar. These disadvantages are present in more or less degree on practically every tramcar. It may be due to worn track—sunk joints. Admittedly, the best of trucks will perform indifferently on really bad rails. The vogue of cushioned seats to win back the tramway rider, whilst excellent in itself, will obviously not improve the riding motion of the car. Cars continue to swing and pitch, and some modern bogie cars have what has been termed an "oily roll," creating the most disturbing feeling of sickness; indeed, cases are not unknown of actual sickness amongst women and children. Conductors could give instances. If a plebiscite could be taken, or the question innocently raised in one's intimate circle of acquaintances, a preference for the bus might be adjudged to some extent on such grounds. The welfare of tramways and their preservation as an industry of considerable magnitude demands that every angle in its problems and difficulties should be intensively studied. If the traffic remains stationary even with more attractive cars, something further must be done to win back the patronage of the public. If the contention is that the riding motion of the tramcar is a real factor, then immediate steps must be taken. The spring suspension is obviously the culprit. Some spring systems are hard-riding, creating jars and shivers to the discomfort of the passengers. Some possess a buoyancy that gives the wondering rider a feeling of perpetual motion. Even a happy mean in spring capacity cannot solve all difficulties. The location of these springs in the general design repays the time spent in exhaustive investigation and test. Riding discomfort in the upper saloon is more pronounced than in the lower. The upper saloon is mainly occupied by the male. It is not too much to say that here he is violently tossed about. From either end of the car one sees a vista of swaying humans, now fore and aft, now side by side, when not displaced ten to twelve inches either side of the track centre. With the continuance of this treatment, will they also drift away in batches to the bus? In the main, they are the peak hour traffic, the golden revenue from which the losses in the slack hours are offset. Before complacently accepting the stereotyped claim to have the "best riding cars" it might be pertinent to inquire to what extent "riding motion" is responsible for a substantial portion of the traffic losses.

THE ROAD TRAFFIC BILL.

DEFECTIVE VEHICLE REGULATIONS.

Standing Committee C of the House of Commons, which is considering the Road Traffic Bill, met again on Tuesday and Thursday under the chairmanship of Sir Hugh O'Neill. On Clause 3, dealing with the prohibition of motor vehicles that did not comply with regulations as to construction, weight, equipment, and use, Colonel Ashley moved an amendment to limit the maximum penalties for breach of the regulations to a fine not exceeding £5 for the first offence and £10 for subsequent offences. He considered the penalties prescribed for such offences, viz., a maximum fine of £20 for the first offence, and a fine of £50 or three months' imprisonment for subsequent offences, were absurdly severe.

Mr. Morrison, Minister of Transport, stated that the proposed regulations would not be applied until the various associations interested in road transport had been given an opportunity of making representations on the draft regulations. Even a light car would be dangerous if the brakes were imperfect. He had no doubt that the Courts would take into account how far the monetary penalties were serious for the person convicted.

Major Glyn said it was a serious offence to use an unroadworthy vehicle. Some of the vehicles now in use were a danger to their occupants and to others, but he thought the penalties now prescribed were unduly severe.

Sir J. Melville, the Solicitor-General, said the object of the Bill was to make offences not worth committing.

The amendment was rejected by 19 votes to 18, and the clause was agreed to.

DRIVING LICENCES.

Colonel Howard-Bury moved an amendment to Clause 4, which deals with the licensing of vehicles, to make the failure to renew a driving licence a minor penalty.

Mr. Morrison said the necessity that every driver should have a licence was of vital importance, because it was the whole basis of control over drivers and the use of motor vehicles. Any slackness in renewal of licences created difficulties.

Sir J. Melville stated that the £20 maximum penalty for this offence had appeared in the Statute since 1903, but the maximum was only enforced in special circumstances.

The amendment was negatived.

On Thursday an amendment to clause 4 was moved by Lieut.-Col. Ashley, to provide that only a police officer in uniform, or showing his authority, should be authorised to require motorists to produce their licences.

Mr. Short, Parliamentary Under-Secretary, Home Office, said that the proposal in the Bill was a re-enactment of the provision of the Motor Car Act of 1903. There had been no complaints during 26 years that civilians stopped motorists. The motorist was within his rights in asking a police officer in plain clothes, who demanded the production of his licence, to show his authority.

Mr. Morrison, Minister of Transport, stated that clause 4 only gave power to the police to compel the production of licences.

The amendment was rejected without a division.

A long discussion then followed on an amendment to provide that a police constable should be empowered only to require a motorist to produce his licence, but not to require it for examination.

Captain Sir William Brass said that the purpose of this proposal was to protect a motorist against having endorsements, that may be on the licence for offences, being seen by a police constable.

The amendment was withdrawn and Mr. Morrison agreed that after the word "examination" there should be inserted "so as to enable the police constable to ascertain the name and address of the holder of the licence, the date of issue, and the authority by which it was issued."

The Committee adjourned until Tuesday.

Trolley Omnibuses for Liverpool.—Liverpool Corporation has been able to settle with all the interests which had presented petitions against their Bill, which has now become unopposed. The Bill proposes, among other things, the construction of new streets and the use of the trolley omnibus system in new suburban areas.

Digitized by Google

NEW TRAMCARS FOR BELFAST.

Replying to a question in the Ulster Parliament on February 24, the Minister for Home Affairs said that at present the tramcars of the Belfast Corporation were taxed to their utmost capacity at certain rush periods, but the Corporation were taking steps to provide a considerable number of new cars, with increased seating capacity, and double-deck omnibuses. These would give greatly increased accommodation to meet the constantly growing traffic.

An advertisement of the Corporation inviting tenders for the supply of 50 double-deck top-covered vestibule tramcars, and alternatively 50 tramcar bodies, 50 trucks, and 50 electrical equipments, and six four-wheel 50-seat double-deck, top-covered omnibuses, and alternatively six double-deck top-covered bodies, complete with enclosed staircases, and six four-wheel chassis, appeared in our issue of last week. Tenders are due not later than March 18.

L.C.C. TRAMWAYS PROSPERING.

In submitting the estimates for the year ending March 31, 1931, to the London County Council on Tuesday, Mr. Angus N. Scott, chairman of the Finance Committee, referring to the Council's tramways undertaking, said: "It is, I am sure, a matter of great satisfaction to all members of the Council to know that our tramways have passed successfully through the long period of financial depression, and that the estimated result of the year ending March 31, 1930, after meeting all charges, including interest on capital and the redemption of debt required by statute, is a profit of upwards of £50,000."

In each of the preceding six years the L.C.C. Tramways showed a loss ranging from £278,000 in 1924-25 to £6,789 in the year ending March 31, 1929.

PERSONAL.

Mr. F. R. Kay has been appointed home sales manager to the Vulcan Motor & Engineering Co., Ltd., of Southport. For many years Mr. Kay was sales manager to the Rover Co.

The Late Lieut.-Col. Montagu Gradock, a director of the Metropolitan-Vickers Electrical Co., Ltd., and of the Westinghouse Brake and Saxby Signal Co., Ltd., left estate valued at £63,335 (£24,623 net personalty).

Mr. T. P. Sykes, general manager, Rotherham Corporation transport undertaking, has been recommended by the Tramways Committee for an increase of £100 to his salary in £900. Mr. W. Cornick, traffic superintendent, is recommended for an increase from £350 to £400.

Mr. A. Brown, who has been appointed traffic superintendent of the Keighley, Ilkley and Bradford section of the West Yorkshire Road Car Co., began as a driver in the service of Keighley Corporation. Afterwards he became traffic superintendent of a Keighley omnibus company.

Mr. A. G. Robertson has been appointed general sales manager of the Goodyear Tyre & Rubber Co. (Great Britain), Ltd. The vacancy thus created in the position of sales manager for Scotland has been filled by the promotion of Mr. S. Stanger, who has represented the company in Aberdeen. His headquarters now are at 61, Bath Street, Glasgow.

Mr. E. C. Cox, chief operating superintendent of the Southern Railway, has been appointed traffic manager of the operating and commercial departments, which have been merged. An important section of the new scheme will be road transport, including railhead distribution. As the company has acquired substantial financial interests in the most important road transport companies in its area, there are to be developments in the facilities offered by the Southern Railway for the conveyance by road of both passengers and goods.

Mr. J. G. Cockburn, lately garage superintendent of Sheffield Corporation Tramways and Motors, who this week took up a new position as rolling stock superintendent of Plymouth Corporation Tramways and Motors Department, was presented on February 27 with a gold watch and chain by the combined administrative staff. The good wishes of the donors were expressed by Mr. H. Watson, assistant manager, acting for the general manager, Mr. A. R. Fearnley. Congratulations from other branches of the service were tendered by Messrs. S. W. A. Sturman, R. R. Telford, and H. Wilson, representing works, overhead lines and staff, respectively. Mr. Cockburn has over 25 years' service with Sheffield Tramways Department.

Mr. Thomas Treacy, who recently died at Sandymount, near Dublin, was for over half-a-century in the service of Dublin United Tramways Co. He drove the last horse tramcar in 1900.

FINANCIAL.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended March 5 amounted to £81,016, an increase of £2,648 compared with the corresponding week of last year. The route length was 165.55 miles, as compared with 166.29 a year ago. From April 1 (the commencement of the financial year) to March 5 (48 3-7 weeks) the total receipts were £4,050,779, an increase of £75,740.

Municipal Transport Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended February 15 give total receipts of £399,626, or £41,222 more than in the corresponding week of last year. The aggregate receipts for 46 weeks amounted to £19,108,612, an increase of £894,361 over the corresponding period of last year.

MISCELLANEOUS NEWS AND NOTES.

Dundee Corporation intends to double the tramway track between Ure-street and Glenagnes-road.

Ashton-under-Lyne Tramways Committee is asking for sanction for the loan of £10,000 for the purchase of trolley and petrol omnibuses.

Omnibuses in Place of Cable Cars.—The cable cars of Douglas Corporation have been sold to a local contractor, and their place is to be taken by motor omnibuses.

Fare to a Football Ground.—Bradford Tramways Committee has decided to charge a fare of 2d. instead of 1d. on special cars running to the football ground. The proposal requires the assent of the City Council.

The Institute of Metals.—The annual dinner and dance of the Institute of Metals, which was to have been held at the Hotel Victoria on March 12, will be held at the Hotel Metropole on the same day.

Bradford Licensing Committee recently rejected an omnibus on the ground that it was 30 ft. long, while the Bradford limit is 26 ft. A double-decker submitted was approved on the condition that a window at the top of the staircase should be made to open.

Doncaster Town Council has decided to make application to the Unemployment Grants Committee for a grant for the removal of the track and the reinstatement of the roadway on the various routes on which the tramway service has been abandoned.

The Traction Question on Tees-side.—As a result of a conference between Stockton, Thornaby and Middlesbrough Town Councils, it is probable that the entire system of tramways connecting these towns will, when worn out, be discontinued and replaced by a motor omnibus service.

Division of Holidays.—Salford Tramway employees have agreed to the Corporation Tramways Committee's suggestion that the annual twelve days' holiday should be divided into six days in summer and six in winter. This arrangement will enable regular instead of seasonal work to be given to 85 men.

Co-ordination at Leeds.—Leeds Tramways Committee has asked the town clerk to obtain an early completion of the agreement between the Corporation and the London Midland and Scottish Railway and the London & North-Eastern Railway for the co-ordination of road passenger transport services.

Warwick Corporation has decided that under the powers conferred upon them by the Warwick and Leamington Traction Act, 1929, they will themselves undertake the reconstruction of the roads when the old tramway track is abandoned about April next. The tramway company is to pay a portion of the cost.

Theft of Tramway Takings.—About £200 in notes and silver was stolen from an L.C.C. tramway motor lorry on the morning of March 2. The lorry was travelling from the depot at Baker's Arms, Leyton, and the theft was not discovered until the vehicle reached Stamford Hill depot. The money was in three heavy boxes, securely fastened.

London "Rush Traffic" Omnibuses.—The London General Omnibus Company put in service on March 1 fifteen of their new "rush-traffic all-enclosed" omnibuses (ST Type) on route 184, between Southall and London Bridge. The new omnibuses, which seat 50 passengers, were described and illustrated in our issue of February 13, 1930.

Proposed Tramway Subway at Liverpool.—The Bill which the Corporation of Liverpool is promoting provides for powers to borrow £31,730 for the construction of a tramway in a tunnel along a new arterial road, for which the Bill asks powers. The estimated expenditure on this road and other street improvements is £1,694,236.

The Institution of Electrical Engineers.—On Thursday, March 13, a paper will be presented on the Imperial Chemical Industries, Limited's, Steam and Electric Power Plant at Billingham, by Messrs. H. A. Humphrey, D. M. Buist, and J. W. Bansall. The paper will be illustrated by a cinematograph film, and a model of the station will be exhibited.

Trolley Omnibuses Proposed at Aberdeen.—Aberdeen Town Council is being urged to inquire into the possibilities of trolley omnibuses. Coun. Graham, while he does not advocate the abolition of the existing tramway services, recommends that use should be made of the trolley omnibus as a subsidiary feeding service for the outlying parts of the city.

Omnibuses on Manchester Circular Route.—On March 2 ten Manchester single-deck tramcars were withdrawn from service, and ten new double-deck omnibuses took their place, on circular route (53) from Stretford-road to Cheetham Hill-road. The other cars on this route are to be replaced gradually as new omnibuses are received. With the completion of the sixtieth omnibus, the last car will disappear from the route. The total cost of the omnibuses is about £110,000. Each omnibus seats 50 passengers, while the tramcar had 40 seats and standing room for 12 passengers.

More Omnibuses for Newcastle.—Ald. R. Mayne, chairman of the Newcastle Transport Committee, has asked for and obtained the sanction of the Council for the purchase of additional omnibuses, involving a total sum of £70,000. Application will be made to the Ministry of Transport for authority to borrow this sum as required. Mr. Mayne stated that the "corner has been turned with regard to the omnibuses." Up to the end of last year, they had been losing, but they were making at least £100 a week now, with every prospect of doing better. They required immediately 22 double-deck omnibuses to deal with the traffic.

Digitized by Google

Scarborough Town Council has decided to inform the company owning all the omnibus services in the town, in which the L.M.S.R. have a controlling interest, that the Corporation is prepared to enter into negotiations with the company with a view to making an agreement to secure the abolition of the tramways, and the introduction of omnibus services.

L.C.C. Tramways Publicity.—A picture of the Strand issued by L.C.C. Tramways is a pleasant blending of old and new. It shows the island churches of St. Mary-le-Strand (1717), St. Clement Danes (1681) and the additional facade of Bush House (1929). The first church is on or near the site of the Strand maypole, the second contains the pew of Dr. Samuel Johnson, whose statue, almost unknown, faces Fleet-street.

New Depot and Omnibuses for Birkenhead.—The Tramways Committee has adopted the plans of the borough surveyor for the reconstruction of the tramways depot at New Ferry, at an estimated cost of £16,000. The Committee has accepted the tender of Frank Thomas & Son, of Birkenhead, for extensions of the Laird depot. Sanction has been received to borrow £20,559 in connection with the provision of 23 additional motor omnibuses.

Street Accidents in London.—The return of street accidents for the last three months of 1929 shows that an unusually large number of deaths in London is recorded of people who cross the road "without due care." There were 32,483 accidents to persons and property; 407 persons were killed, and 14,111 injured. Private motor-cars caused the death of 145 persons; trade and commercial vehicles 130; motor-cycles, 55; and omnibuses, 34.

Scottish Tramways and Transport Association.—The eighth annual conference of the Scottish Tramways and Transport Association will be held at the Atholl Palace Hotel, Pitlochry, on Friday and Saturday, May 23 and 24, 1930. The arrangements of the meeting are in the hands of a committee, consisting of Messrs. J. H. Shepheard, Dunfermline (Chairman); D. P. Morrison, Dundee; W. J. H. Penman, Perth; and R. Watson, Edinburgh (hon. secretary and treasurer).

Cheltenham Tramways Discontinued.—Cheltenham Corporation and Cheltenham and District Traction Co., have come to an agreement as to the abandonment of the tramways. The company will discontinue the use of the Prestbury and the Leckhampton routes, not later than March 31, and the remainder of the tramways within the borough not later than March 31, 1931. The Corporation has agreed not to exercise its right to purchase the undertaking in 1931 under the provisions of the Cheltenham Traction Act.

Wind-screen Wipers.—Leeds Watch Committee has received a letter from the Ministry of Transport intimating that the Minister does not consider it desirable to make any regulation specifically providing that motor vehicles shall be equipped with automatic wind-screen wipers. The Committee decided, however, to amend the specification in respect of the licensing of public service vehicles to ply for hire within the city, so as to provide that all new vehicles shall be equipped with automatic wind-screen wipers.

Appointments under the Road Traffic Bill.—The Ministry of Transport has received a deputation from the Institution of Automobile Engineers in reference to the appointment of certifying officers under the Road Traffic Bill. The deputation urged that such officers should have qualifications at least equal to those required for associates of the Institution. Mr. H. H. Piggott, deputy-secretary of the Ministry, assured the deputation that the appointments would be advertised in time to admit of members sending in applications.

Car Heating at Glasgow.—Mr. Lachlan Mackinnon, general manager, Glasgow Corporation Tramways, has announced that all the cars will be electrically heated in the upper and lower saloons. The extra lighting circuit on the upper deck which permits reading outside as well as inside is also to be provided on all cars. The reconditioning of the rolling stock is making good progress, and 105 cars have already been entirely enclosed on the top deck. There are now 123 double-deck omnibuses in service, and deliveries will shortly begin of an order for 100 omnibuses.

London Subway Not for Motor Traffic.—At the meeting of the London County Council on February 25, the Highways Committee presented a report with reference to the suggestion that the tramway subway from Victoria Embankment to Southampton-row, which is now being deepened to admit double-deck cars, should be used for omnibuses and other motor traffic. The report stated that both the Minister of Transport, after advice by the London and Home Counties Traffic Advisory Committee, and the Commissioner of Police of the Metropolis, concurred in the opinion that the proposal was not in the best interests of the circulation of traffic, and they recommended that no action be taken.

British Engineering Standards Association.—The Duke of York attended the dinner, held at Grocers' Hall, on Thursday, of the British Engineering Standards Association to celebrate the Royal Charter recently granted to it by the King. The Duke of York, in proposing the toast of "The Association," said the spirit of co-operation was to be found everywhere in industry to-day, and it was doing much to help the general reorganisation along the most modern, scientific and economic lines. The association had laboured unceasingly to create and foster this spirit of co-operation and generally had had marked success in persuading the various branches of the engineering and allied industries to come together and unify and simplify their needs. The Chairman of the Association (Mr. Maurice F. G. Wilson), in reply, said that the Association had now 500 committees at work, served by over 2,000 professional men.

Omnibus Station at Hull.—The Hull city engineer has been instructed to prepare a draft scheme and estimates for an omnibus station to be erected on land partly owned by the London and North-Eastern Railway, and partly by the Corporation. The site is at the rear of the proposed new street from Paragon Station to Beverley-road, adjacent to the north side of the railway station.

Rail Motor Coaches.—The Pennsylvania Railroad Co. has ordered five 75-ft. petrol-electric coaches from the J.G. Brill Company. When these coaches have been delivered, the railroad will have thirty Brill rail coaches in service. The Great Northern Railroad Co. has ordered another 75-ft. petrol-electric coach, and the Havana Terminal Railroad a 75-ft. rail motor coach with mechanical transmission.

Railway Electrification Delays.—At the meeting of the L.M.S. Railway shareholders on February 28, Sir Josiah Stamp, referring to the Weir Committee, which is now considering main line electrification, said "it is not the intention that the inquiry shall in any way interfere with, or delay, any particular schemes of suburban or other electrification. While it is easy to overstate or overestimate the possibilities of main line electrification, we propose to assist the committee in every way possible to arrive at sound conclusions upon the prospects." Judging from this pronouncement, much electrical enterprise on the part of the L.M.S. does not appear to be immediately probable.

Over-crowding Complaint at Nottingham.—Summoned at Nottingham on March 5 for aiding and abetting in respect of an offence of an overcrowded omnibus, the proprietor complained that he had made repeated application to the Watch Committee for licences to run additional omnibuses into Nottingham, but was refused on the ground that the service was adequate. The defendant said that if he could obtain licences he would put on three more omnibuses. The magistrates agreed that the position was rather a hard one, and recorded no conviction, but ordered him to pay the costs. The conductor of the vehicle was fined £3. It was stated that 60 passengers were conveyed on an omnibus with seats for 32.

Trolley Omnibus Powers for Derby.—The Select Committee of the House of Commons on Thursday considered the Derby Corporation Bill, the provisions of which include power to run trolley vehicles along any fixed tramway route in the borough and also along routes in certain districts outside the borough for which the Corporation already possesses powers. Mr. J. W. Horton, county surveyor of Derbyshire, in giving evidence against the Bill, said that the poles for trolley vehicles in his opinion would be dangerous to traffic. They might be safe in towns but not on country routes. The Committee, after deliberating in private, decided to grant powers asked for within the borough, and on six of the twelve proposed outside routes.

CONTRACTS.

Nesta, Ltd., are supplying 100 sets of upholstered tramcar seats to Manchester Corporation Tramways.

Siddall & Hilton, Ltd., are supplying 15 sets of upholstered omnibus seats to Manchester Corporation.

Eastbourne Omnibus Committee has invited tenders for the supply of pneumatic tyres on a mileage basis.

W. Griffiths & Co., Ltd., are to reconstruct the tramway track for the Barking U.D.C. at £27,515 7s. 8d.

Bolton Tramways Committee has decided to purchase five double-deck omnibuses of the "Titan" type from Leyland Motors, Ltd.

Sunderland Tramways Committee has recommended the Council to purchase six additional omnibuses. The Corporation now has thirteen vehicles in service.

The Brush Electrical Engineering Co., Ltd., of Loughborough, has received an order from Newcastle Corporation Transport Department for six double-deck top-covered omnibus bodies.

Glasgow Transport Committee has accepted the tenders of the English Electric Company, Ltd., for the supply of a transformer, and of Edgar Allen & Company, Ltd., and the Titan Trackwork Company, Ltd., for special trackwork.

The Westinghouse Brake & Saxby Signal Co. have received an order from Birmingham Carriage and Wagon Company for 400 Prestall vacuum brake sets for wagons which they are building for the Buenos Aires and Pacific Railway.

Manchester Corporation Transport have placed an order for a "Cyclone" washing plant with the Equipment and Engineering Company, Limited. This is the eleventh "Cyclone" plant installed by the Manchester Transport Department.

Glasgow Corporation has awarded to the Metropolitan-Vickers Electrical Co., Ltd., a contract for the supply of a turbo-alternator and spares for Pinkston power station, at £41,867, subject to deduction in respect of spares for condensing plant.

Conversion of a Heating System.—Salford Tramways Committee has recommended the acceptance of the tender of £623 of G. Davson and Sons, of Salford, for converting the heating system at the Weaste omnibus garage from coal to oil burning.

Tenders for Machine Tools.—Manchester Tramways Committee has recommended the acceptance of the tender of Sagar & Co., Ltd., of Halifax, for a motor-driven mortising machine, and of T. Robinson & Sons, Ltd., of Rochdale, for a motor-driven moulding machine.

More Crossley Omnibuses for Manchester.—The Transport Committee of the Manchester Corporation has recommended the purchase of a further 15 Crossley 38/110 h.p. "Sixes." This is the fourth repeat order received by Crossley Motors, Ltd., and makes a total of almost a hundred Crossley 'buses for Manchester streets. These are mostly their latest type six-cylinder models, specially designed for passenger transport, and comprise both single and double-deckers.

Digitized by Google

Vulcan Motor and Engineering Co. (1906), Ltd., has supplied to the Hong Kong and Shanghai Hotels, Ltd., a fleet of "Duke" 20-seater omnibuses. The company has received a repeat order from the War Office for a fleet of vans on the 30-cwt. four-wheel chassis.

Sheffield Tramways Committee has accepted the following tenders: Eighteen pairs of tramcar traction motors at £355 per pair, Metropolitan-Vickers Electrical Co., Ltd.; eighteen car sets of control and braking system at £207 10s. per set, Maley & Taunton, Ltd.; eighteen tramcar trucks at £208 each, Cravens Railway Carriage and Wagon Co., Ltd.

Walthamstow Tramways Committee has accepted tenders for the reconstruction of the track in Woodford New Road, as follows: Rails and fishplates, Cargo Fleet Iron Co.; points and crossings, Edgar Allen & Co., Ltd.; welded joints, Rail Welding Co., Ltd.; tie-bars, clips and bolts, Bayliss, Jones & Bayliss, Ltd.; copper joints, T. Bolton & Sons; car shed lay-out, Titan Trackwork Co., Ltd.

Northampton Tramways Committee has recommended the acceptance of the following tenders: Guy Motors, Ltd., for six six-wheel chassis for 50-seat omnibuses at £1,375, and three 26-seat four-wheel bodies at £1,350 each; Associated Equipment Co., Ltd., for one six-wheel chassis for a 50-seat body at £1,155; Grose, Ltd., for seven omnibus bodies at £795 each; Vulcan Motor & Engineering Co., Ltd., for two 26-seat single-deck four-wheel omnibuses at £1,285, and three 26-seat single-deck bodies at £400 each; John I. Thornycroft & Co., Ltd., for three 26-seat single-deck four-wheel omnibus chassis at £860 each.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

NAME.	Week ended	LATEST RETURN. 1929	1930	+ or —	AGGREGATE. Wks.	1929-30	+ or —
		£	£	£		£	£
Aberdare U.D.C. ...	Mar. 4	408	537	+ 39	48½	28,887	+ 2,900
,, Motor Buses ...	,, 4	237	270	+ 33	48½	12,627	+ 1,929
,, Total	,, 4	735	807	+ 72	48½	41,514	+ 4,925
Aberdeen Corp. ...	Feb. 22	3,838	4,143	+ 305	39½	193,570	+ 16,057
Ashton-u-Lyne Corp.	,, 22	759	811	+ 52	47	42,794	+ 1,779
,, Motor Buses ...	,, 22	416	444	+ 28	47	22,722	+ 2,969
,, Trolley Buses ...	,, 22	262	257	— 5	47	13,198	— 682
,, Total	,, 22	1,437	1,512	+ 75	47	78,714	+ 4,066
Ayr Corporation ...	Mar. 1	380	400	+ 20	41	24,465	+ 1,447
Barrow Corporation ..	Feb. 15	500	498	— 2	46	27,053	— 3,206
,, Motor Buses ..	,, 15	255	327	+ 72	46	17,711	+ 7,391
,, Total	,, 15	755	825	+ 70	46	44,764	+ 4,185
Belfast City	,, 28	10,475	10,553	+ 78	47½	531,547	+ 82,638
,, Motor Buses ...	,, 28	923	1,302	+ 379	47½	53,660	+ 35,331
,, Total	,, 28	11,398	11,855	+ 457	47½	585,207	+ 117,969
Birkenhead Corp. ...	Mar. 2	1,524	1,445	— 79	48	78,310	— 10,257
,, Motor Buses ...	,, 2	2,784	3,013	+ 229	48	168,262	+ 31,108
,, Total	,, 2	4,308	4,458	+ 150	48	246,572	+ 20,851
Birmingham Corp. ...	Feb. 25	24,853	26,059	+ 1,206	47	1,290,049	+ 20,406
,, Motor Buses ...	,, 25	11,387	15,196	+ 3,809	47	640,037	+ 117,187
,, Trolley Buses ...	,, 25	514	557	+ 43	47	26,718	+ 888
,, Total	,, 25	36,754	41,812	+ 5,058	47	1,956,804	+ 138,481
Blackburn Corp. ...	,, 26	1,702	1,650	— 52	47½	91,208	— 4,959
,, Motor Buses ...	,, 26	Nil	293	+ 293	16½	5,645	+ 5,645
,, Total	,, 26	1,702	1,943	+ 241	47½	96,853	+ 686
Bradford Corporation	Mar. 1	12,820	13,844	+ 1,024	48	710,474	+ 39,761
Brighton Corporation	,, 2	1,828	2,071	+ 243	48	123,496	+ 3,808
Burnley Corporation..	,, 1	2,705	2,691	— 14	...	...	...
,, Motor Buses ..	,, 1	591	621	+ 30	...	...	...
,, Total	,, 1	3,296	3,312	+ 16	...	...	..
Burton-on-Trent Cpn.	,, 2	724	839	+ 115	48	25,844	+ 6,232
Bury Corporation ...	,, 2	1,812	1,765	— 47	48	94,642	— 9,023
,, Motor Buses ...	,, 2	291	914	+ 623	48	30,022	+ 12,248
,, Total	,, 2	2,103	2,679	+ 576	48	124,664	+ 3,225
Cardiff Corporation ...	,, 1	6,859	7,248	+ 389	47½	370,044	+ 9,370
Chatham and District	Feb. 27	868	989	+ 121	8	8,621	+ 618
Chesterfield Corp. ..	Mar. 3	1,856	1,921	+ 65	48	95,307	+ 3,723
Colchester Corp. ..	,, 5	458	548	+ 90	49	27,208	+ 5,167
Colne Corporation ..	Feb. 26	594	633	+ 39	48	33,951	+ 317
Coventry Corporation	Mar. 2	2,005	2,040	+ 35	48	102,935	+ 2,319
,, Motor Buses ..	,, 2	1,407	1,779	+ 372	48	80,454	+ 21,269
,, Total	,, 2	3,412	3,819	+ 407	48	183,389	+ 23,668
Darlington Corp. ...	,, 1	940	1,018	+ 78	47½	48,218	+ 1,461
Derby Corporation ...	,, 1	2,211	2,278	+ 67	48	119,734	— 3,105
,, Motor Buses ...	,, 1	580	844	+ 264	48	37,117	+ 15,210
,, Total	,, 1	2,791	3,122	+ 331	48	156,851	+ 12,105
Dover Corporation ...	,, 1	293	337	+ 44	48	19,478	+ 727
Dundee Corporation	Feb. 25	3,229	3,191	— 38	40½	140,989	+ 5,168
East Ham Corp. ...	Mar. 1	2,211	2,319	+ 108	47½	110,476	+ 5,309
Edinburgh Corp. ...	Feb. 22	12,278	13,191	+ 913	40½	583,921	+ 25,115
,, Motor Buses ...	,, 22	2,935	3,245	+ 310	40½	141,581	+ 16,626
,, Total	,, 22	15,213	16,436	+ 1,223	40½	725,502	+ 41,741
Exeter Corporation ..	Mar. 5	755	770	+ 15	49	41,441	+ 703
Glasgow Corporation	,, 1	41,020	42,583	+ 1,563	39	1,734,438	+ 27,849
,, Motor Buses ...	,, 1	4,896	7,799	+ 2,903	39	243,246	+ 122,848
,, Total	,, 1	45,916	50,382	+ 4,466	39	1,977,684	+ 150,697
Gloucester Corp. ...	Feb. 26	460	621	+ 161	47⅞	28,847	+ 2,789
Grimsby Corporation..	Mar. 1	1,206	1,397	+ 191	48	70,240	+ 6,654
Halifax Corporation ..	Feb. 25	3,797	4,765	+ 968	47½	224,943	+ 20,228
Huddersfield Corp. ...	Mar. 1	5,534	6,038	+ 504	48	307,470	+ 4,949
Hull Corporation ...	,, 1	5,739	5,689	— 50	48	290,591	+ 1,637
,, Motor Buses ...	,, 1	1,229	1,457	+ 228	48	68,469	+ 9,162
,, Total	,, 1	6,968	7,146	+ 178	48	359,060	+ 10,799
Ilford Corporation ...	,, 1	1,395	1,444	+ 49	47½	72,015	+ 1,513
Ipswich Corp. Trol.Bus	,, 1	1,114	1,206	+ 92	48	61,858	+ 4,325
Isle of Thanet ...	Feb. 26	304	346	+ 42	8½	2,803	- 217
Kilmarnock Corp. ...	Mar. 1	403	440	+ 36	41½	19,857	+ 1,433
Lancashire Un. ...	Feb. 23	2,147	2,040	— 107	7⅛	17,040	— 207
,, Motor Buses ...	,, 23	3,693	4,451	+ 758	7⅛	35,095	+ 6,759
Leeds Corporation ...	,, 22	17,021	18,971	+ 1,950	46½	920,245	+ 32,755
Leicester Corp. ...	Mar. 1	7,508	8,172	+ 664	48	405,655	+ 20,916
Lincoln Corp. ...	,, 2	803	844	+ 41	48	44,377	+ 1,950
Liverpool Corp. ...	,, 1	27,490	28,440	+ 950	47½	1,442,813	+ 31,051
London County Coun.	,, 5	78,368	81,016	+ 2,648	48½	4,050,779	+ 75,740
Luton Corporation ...	Feb. 26	311	360	+ 49	47½	19,227	+ 1,275
Maidstone Corp. ...	,, 27	167	Nil	— 167	47½	8,643	— 3,521
,, Motor Buses ...	,, 27	212	235	+ 23	47½	15,075	+ 4,337
,, Trolley Buses ...	,, 27	243	506	+ 263	47½	14,988	+ 2,291
,, Total	,, 27	622	741	+ 119	47½	38,706	+ 3,107
Manchester Corp. ...	Mar. 1	32,616	33,970	+ 1,354	48	1,678,434	+ 20,715
,, Motor Buses ...	,, 1	4,393	5,418	+ 1,025	48	239,869	+ 36,745
,, Total	,, 1	37,009	39,388	+ 2,379	48	1,918,303	+ 57,460
Middlesbrough Corp.	Feb. 25	1,069	1,051	— 18	47⅜	53,787	— 278
,, Motor Buses ...	,, 25	441	535	+ 94	47⅜	25,242	+ 3,913
,, Total	,, 25	1,510	1,586	+ 76	47⅜	79,029	+ 3,635
Newcastle-on-Tv. Corp	Mar. 1	8,390	8,740	+ 350	48	470,311	+ 20,776
,, Motor Buses ...	,, 1	1,696	2,140	+ 444	48	97,786	+ 9,599
,, Total	,, 1	10,086	10,880	+ 794	48	568,097	+ 30,375
Newport Corporation...	Feb. 22	646	708	+ 62	47	36,000	+ 2,597
,, Motor Buses ...	,, 22	1,539	1,532	— 7	47	79,379	+ 590
,, Total	,, 22	2,185	2,240	+ 55	47	115,388	+ 3,187
Northampton Corp....	,, 28	1,208	1,036	— 172	47⅝	53,384	— 15,382
,, Motor Buses ...	,, 28	375	627	+ 252	47½	32,064	+ 16,767
,, Total	,, 28	1,583	1,663	+ 80	47⅝	85,448	+ 1,385
Nottingham Corp. ...	,, 27	5,952	5,719	— 233	47⅛	309,863	— 10,483
Motor Buses ...	,, 27	2,022	3,019	+ 997	47⅛	121,237	+ 29,156
,, Trolley Buses ...	,, 27	536	990	+ 454	47⅛	28,891	+ 2,175
Total	,, 27	8,510	9,728	+ 1,218	47⅛	459,991	+ 20,848
Oldham Corporation...	Mar. 1	3,298	3,384	+ 86	49	175,249	— 14,522
,, Motor Buses ...	,, 1	1,762	1,966	+ 204	49	98,645	+ 27,759
,, Total	,, 1	5,060	5,350	+ 290	49	273,894	+ 13,237
Plymouth Corp. ...	,, 1	3,054	3,182	+ 128	47⅞	178,377	— 2,893
,, Motor Buses ..	,, 1	1,665	2,045	+ 380	47⅞	97,169	+ 14,758
,, Total	,, 1	4,719	5,227	+ 508	47⅞	275,546	+ 11,865
Portsmouth Corp. ...	,, 1	4,661	5,592	+ 931	48	309,555	+ 19,922
Preston Corporation ...	Feb. 26	1,531	1,508	— 23	47⅜	81,529	+ 1,086
,, Motor Buses ...	,, 26	425	465	+ 40	47⅜	23,722	+ 2,950
,, Total	,, 26	1,956	1,973	+ 17	47⅜	105,251	+ 4,036
Rawtenstall Corp. ...	,, 23	745	797	+ 52	47	39,825	— 1,959
,, Motor Buses ...	,, 23	444	543	+ 99	47	24,660	+ 3,427
,, Total	,, 23	1,189	1,340	+ 151	47	64,485	+ 1,468
Reading Corporation	,, 27	1,339	1,390	+ 51	48	72,981	+ 594
,, Motor Buses ...	,, 27	811	878	+ 67	48	44,191	+ 2,864
,, Total	,, 27	2,150	2,268	+ 118	48	117,172	+ 3,458
Rochdale Corp. ...	Mar. 1	2,007	2,554	— 53	...	137,095	— 12,668
,, Motor Buses ...	,, 1	1,226	1,576	+ 350	...	76,284	+ 12,158
,, Total	,, 1	3,833	4,130	+ 297	...	213,349	— 510
Rotherham Corp. ...	,, 3	2,380	2,645	+ 255	49	134,765	+ 11,820
Salford Corporation ...	,, 2	10,057	11,261	+ 1,204	48	540,794	+ 37,834
Sheffield Corp. ...	,, 1	18,319	20,012	+ 1,693	48	1,005,850	+ 35,849
Southampton Corp. ...	Feb. 26	2,940	3,105	+ 165	48	163,036	+ 14,904
,, Motor Buses ...	,, 26	617	814	+ 197	48	39,208	+ 11,821
,, Total	,, 26	3,557	3,919	+ 362	48	202,334	+ 26,725
Southend-on-Sea Corp.	,, 26	1,639	1,798	+ 159	46½	113,634	+ 1,210
Southport Corp. ...	Mar. 1	1,315	1,370	+ 55	47⅝	80,325	+ 655
St. Helens Corp. ...	Feb. 25	1,845	1,890	+ 45	47¼	97,254	+ 6,690
Sunderland Corp. ...	Mar. 2	2,015	2,271	+ 256	48	116,609	+ 5,263
Swindon Corp. ...	Feb. 26	523	836	+ 313	47½	39,423	— 11,592
Wallasey Corp. ...	Mar. 1	1,137	1,023	— 114	47⅛	61,607	— 35,730
,, Motor Buses ...	,, 1	1,528	1,775	+ 247	47⅛	98,906	+ 54,166
,, Total	,, 1	2,665	2,798	+ 133	47⅛	160,663	+ 18,436
Walsall Corporation ...	Feb. 23	3,044	3,153	+ 409	47	163,290	+ 14,529
Walthamstow Corp....	Mar. 1	2,059	2,314	+ 254	48	116,702	+ 8,731
Warrington Corp. ...	Feb. 27	890	855	— 35	48	42,883	— 984
,, Motor Buses ...	,, 27	437	445	+ 8	48	22,084	+ 3,401
,, Total	,, 27	1,327	1,300	— 27	48	64,967	+ 2,417
West Ham. Corp. ...	,, 27	6,601	5,976	+ 375	47⅛	291,125	+ 26,323
Wolverhampton Corp.	,, 23	Nil	Nil	Nil	47	Nil	— 15,958
,, Motor Buses ...	,, 23	2,693	2,253	— 440	47	129,782	+ 15,786
,, Trolley Buses ...	,, 23	2,960	3,436	+ 476	47	159,552	+ 26,259
,, Total	,, 23	5,653	5,689	+ 36	47	289,334	+ 26,087
York Corporation ...	,, 26	852	891	+ 39	48	49,812	+ 523
,, Motor Buses ...	,, 26	354	466	+ 112	48	20,498	+ 4,956
,, Total	,, 26	1,206	1,357	+ 151	48	70,310	+ 5,479

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

NAME.	Week or M'th.	LATEST RETURN. 1928-29.	1929-30.	AGGREGATE. Wks. or *Ms.*	1929-30.	In. or Dec.
Anglo-Argentine	Mar. 4	£80,171	£78,594	9 w	£746,839	— £25,972
Brazilian Traction $	Jan.	3,802,833	3,862,089	1 *m*	3,862,089	— 30,744
British Columbia $	Dec.	1,228,405	1,255,522	6 *m*	7,251,473	+ 400,835
Buenos Aires Lacroze	Mar. 2	13,246	11,784	35 w	406,858	— 25,386
Burma E. Sup. Co. Rs.	Jan.	64,372	62,533	6 *m*	375,870	— 26,062
Calcutta ... Rs.	Mar. 1	120,123	133,287	84 w	1,073,062	— 84,775
Cape Town	Jan.	31,777	31,036	...	...	...
Carthagena & Herrerias	Feb.	972	1,286	2 *m*	2,637	+ 933
Durban	Jan.	23,916	24,577	6 *m*	145,553	+ 2,767
East India	Feb.	3,055	3,127	7 *m*	26,662	+ 797
Kalgoorlie	Nov.	1,721	1,643	11 *m*	18,817	— 369
La Plata	Dec.	10,300	10,327	12 *m*	116,149	+ 2,604
Madras (2 weeks) Rs.	Feb. 28	35,800	37,165	8 w	180,671	+ 10,835
Para	Jan.	14,028	14,556	2 *m*	29,043	+ 655
Port Elizabeth ...	Jan.	9,203	9,016	...	...	...
Rangoon ... Rs.	Feb.	114,300	140,130	2 *m*	295,210	+ 64,075
Shanghai ... $	Feb.	294,708	322,473	2 *m*	685,873	+ 71,945
Singapore ... ...$	Jan.	115,000	139,000	4 *m*	527,000	+ 81,000
Winnipeg ... ...$	Dec.	586,264	641,362	12 *m*	6,655,237	+ 448,374

RAILWAY RECEIPTS.

9th Week ended Mar. 2nd	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week.	Inc. or Dec. to Date.
G.W.R.	186,000	+ 1,000	357,000	+ 6,000	543,000	— 7,000	+ 70,000
L.M.S.R.	434,000	+ 3,000	864,000	— 1,000	1,298,000	— 2,000	— 67,000
L.N.E.R.	295,000	+ 1,000	726,000	— 5,000	1,021,000	— 6,000	+ 138,000
S.R.	263,000	+ 15,000	127,000	— 4,000	390,000	+ 19,000	+ 86,000
Totals	1,178,000	— 20,000	2,074,000	— 14,000	3,252,000	+ 34,000	+ 227,000

ELECTRIC RAILWAYS.

NAME.	Week Ended.	LATEST RETURN. 1929.	1930.	+ or —	AGGREGATE. 1930.	+ or —
LONDON UNDERGROUND						
Common Fund Cos.	Mar. 1	261,100	294,200	+ 33,100	2,544,800	+ 270,600
Lond. & Sub. Group	,, 1	36,000	41,700	+ 5,700	368,700	+ 51,700
METROPOLITAN RAILWAY	,, 1	34,000	36,300	+ 1,700	327,600	+ 15,700
LIVERPOOL OVERHEAD	,, 2	1,549	1,428	— 121	13,753	— 369
MERSEY RAILWAY ...	,, 1	4,610	4,857	+ 247	43,064	+ 1,712

Digitized by Google

THE Tramway & Railway World
WITH OMNIBUS & COACH SECTION
Founded 1892 LONDON, MARCH 13, 1930 VOL. LXVII

ORDERED TRAFFIC DEVELOPMENT IN BIRMINGHAM.

SLEEPER TRACK TRAMWAYS IN TOWN PLANNING SCHEMES.

For many years the City of Birmingham has been conspicuous for the breadth of view of those responsible for directing its municipal enterprises. In the field of transport in particular great foresight has been shown in retaining for the municipality freedom of action at all important junctures whilst providing adequately for public needs. In this way the Corporation found itself in 1907 the owner of an extensive tramway system on the expiration of a number of leases. All necessary preparations had been made, so that these lines, as well as the shorter routes already worked by the Corporation, could be immediately converted to electric traction; in fact, a fleet of 200 cars was put into operation on the very next day. By 1912 the Tramways Department had taken over the running of all neighbouring systems, and bought out the remaining private company in the enlarged city area. From this time extensions followed in rapid succession, and since 1924 no year has passed without the opening of some new section of route.

It was in 1920 that the late Mr. Alfred Baker, who was general manager from 1903 to 1928, was allowed to carry out his plan for building tracks on their own right of way on outlying routes, where sleeper construction was employed. The first section to be so treated was the tramway along Tyburn Road (Fig. 3). The tremendous advantages from the points of view of operation and maintenance which are derived from this method of construction became immediately apparent and, wherever local conditions have permitted, it has been followed in all subsequent extensions and reconstructions. The Department now operates over 24 miles (measured as single track) of this type of track. The appearance of these

Fig. 1.—Terminus of Tramway Route to the Lickey Hills—Birmingham Corporation Transport.

Digitized by Google

magnificent highways or, as they are termed in open areas," parkways," is well shown in Figs. 2 and 3, the former giving also details of construction over the whole width. The carriage way is divided into two parts for traffic in opposite directions with the double line of tram track in the centre edged with grass and kerbstones on both sides. Wherever cross-roads have vards and contain no tramways, while others stretching towards new housing areas will only have lines laid as the population grows and additional transport facilities are required.

The most imposing of these sleeper-track tramway routes is that which connects the city centre with the magnificent public playground of nearly 500 acres

Fig. 2.—Tramway Sleeper Track and Method of Construction in Bristol Road, Birmingham.

to be provided for, the space between the lines is filled with stone setts and red lamps placed on short standards warn traffic against running up the tram lines. Parkway construction of this character naturally requires a great deal of space ; but in most cases the land has been acquired by the city well in advance of the time of construction, the interest on the capital on the Lickey Hills, about eight miles away. It follows the Bristol Road out of town, passing the new University Buildings at Selly Oak, and following its own right of way almost uninterruptedly with the exception of a stretch in the old village of Northfield, and again outside the Austin Motor Works at Longbridge. Here it divides into two lines, one of which

Fig. 3.—Tramway with Sleeper Tracks in Centre of Arterial Roadway at Tyburn Road, Erdington.

being paid for by the rents received in the interval. After the road has been built the residue of the estates cut up can usually be profitably disposed of, while suitable conditions of building depth, etc., are made to ensure the retention of the amenities of the route. Many of these parkways are of the nature of boule- terminates in a balloon head at the very foot of Rednal Hill, while the other runs to a simple terminus at Rubery within equally easy reach of the hills. The former terminus, the final touches to which have only recently been added, is shown in Fig. 1. There are about 100 yards of shelters disposed round

Digitized by Google

the outside of the balloon head, while the central space has been tastefully laid out with flowerbeds, bushes, and lawns, and is most attractive. On public holidays the neighbourhood of this terminus is reminiscent of a great exhibition ; thousands upon thousands of the city population are set down here within a brief space, and while some fall to the enticements of the many vendors of refreshments and holiday paraphernalia, many more seek out the paths which lead to distant prospects and more peaceful scenes above. Those who reach the nearest crest and look back across the plain to the city they have left are able to pick out the two dark lines of carriageway with the green strip down the centre and the little yellow toys hurrying along with more and more of the now belated seekers of the open spaces. To the visitor this sight is unfamiliar and in striking contrast to the thin yellow strips with attendant clouds of dust which used to indicate a country highway.

The Corporation also possess the largest municipally-owned fleet of omnibuses in the country. These were introduced in early days, in prolongation of tramways since 1913, more generally under special Act since 1914, when with notable foresight the only independent company operating omnibuses in the City was acquired. The Department now operates nearly 400 of these vehicles, used mainly on circular and cross-country routes and so acting as feeders to the radiating tramways. The majority are of the top-covered, double-deck type, but there are also a number of single-deck vehicles designed for one-man operation.

The total number of passengers carried by the two methods for the year ended 31st March, 1929, were : tramways, 243,008,582 ; omnibuses, 81,070,647 ; a total of 324,079,229.

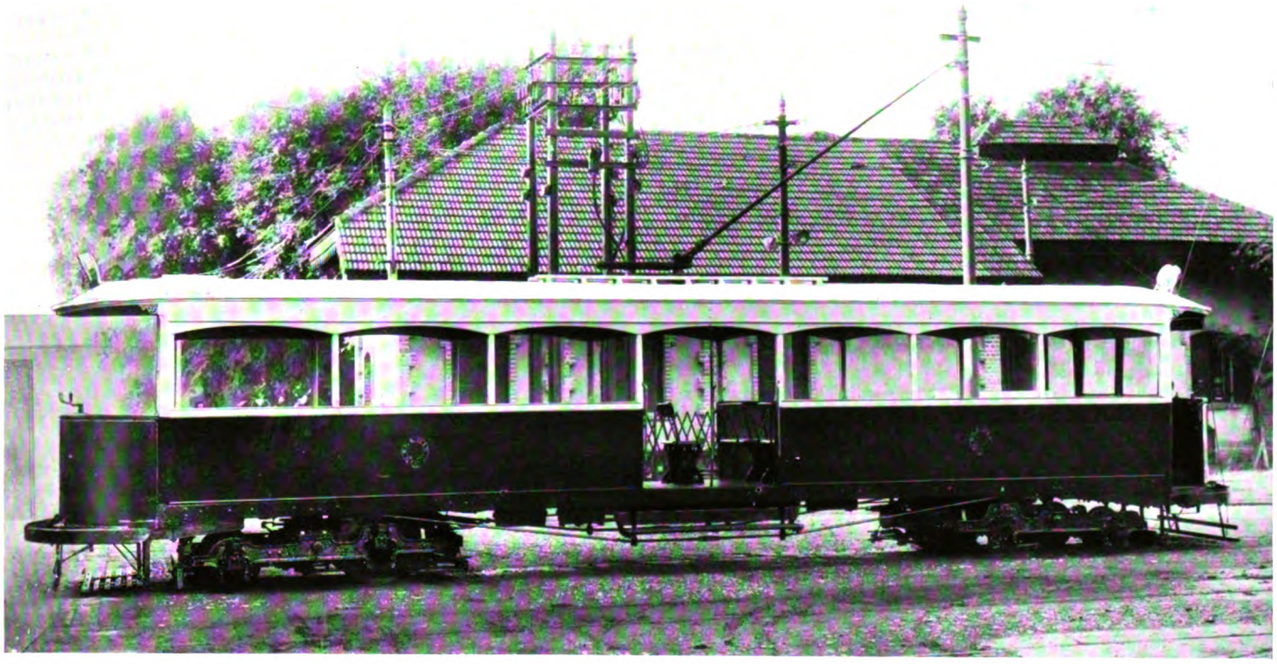
L.C.C. Vestibule Car.—The London County Council has put into service on three months' trial a tramcar with vestibule platforms. Each platform is screened with non-splinterable glass. The car is running at present on the Embankment and Victoria services, but will later be tried on other routes.

TRAMCAR RECONSTRUCTION IN MANDALAY.

Interesting Modifications to Tropical Cars.

Competition with tramway undertakings by motor omnibuses is by no means confined to this country and efforts to meet it by providing increased comfort for passengers are proving as successful in far-off Burma as in those towns in England which have tackled the problem by a bold reconstruction programme.

The Burma Electric Supply Co., Ltd., which operates the tramway system in Mandalay, finding that passengers were attracted by the upholstered and pneumatic tyred ease offered by the motor omnibuses, have put in hand alterations designed to give tramcar passengers greater protection from sun and rain, more comfortable seating accommodation than is offered by the benches with which the present cars are equipped, and the facility for all passengers to face in the direction in which the car is travelling.



Reconstructed Car on the Mandalay Tramways owned by the Burma Electric Supply Co., Ltd.

The first car to be reconstructed is shown in the accompanying illustrations. The sides of this car are panelled to a height of 34 in., giving a convenient arm rest for passengers. The panelling is of Venesta plywood, $\frac{1}{4}$ in. in thickness and the edges of the panels are covered with half-round mouldings made from teak. At the centre of the car is an entrance, 5 ft. wide between pillars, which is found to be ample for both entrance and exit at the same time. Robust brass grab-handles, fitted on each side, are carried down low enough for intending passengers to grasp them easily when standing on the ground. A brass-finished hand-rail, fitted in the centre of the entrance, acts as a safety feature and separates entrance and exit passengers. An additional safeguard is provided by collapsible iron gates to close the entrances as necessary.

The gates are under the control of the conductor, who keeps the offside gate closed so as to prevent

Digitized by Google

passengers alighting on the offside of the car. The footboard at the entrance is 6 ft. long, supported by three brackets halfway between the floor of the car and the ground. The dashboards at each end of the car have been raised to bring them in line with the top of the side panels, thus giving additional protection to the driver in wet weather. The curved window-tops have been lowered 9 in. to give greater protection from sun and rain. Iron safety-treads are fitted on the footboards and at each of the entrances.

The nterior of the body is panelled with "Venesta" plywood mounted on teakwood framing. This panelling is in two sections divided by a centre runner which supports one end of the seats. The teakwood flooring is covered to a thickness of $\frac{3}{8}$ in. with "Salemite" flooring. This material, applied in semi-fluid form, sets in three hours and is subsequently polished. The colour is dark red and the effect is very pleasing, while the floor is heat and damp proof and incombustible. The absence of the usual wood flooring strips enables

Interior of Mandalay Tramcar.

the floor to be properly cleaned with ease. The ceiling is painted white, and the interior illumination is by eight lamps which have been re-distributed at the sides in order to leave full head room in the gangways.

Seating accommodation is provided for 42 passengers, against 46 in the present cars, a loss of 4 seats only. The conductor has his own seat in the centre of the car. The seats are double on one side and single on the other, leaving ample gangway, the arrangement being reversed in the other half of the car. The space between seats is $11\frac{1}{2}$ in., which is found to be sufficient for the class of passenger carried.

The seats themselves are of a new design, being teakwood frames with openwork "Singapore cane" centres. This design gives great comfort, coolness and the facility for easy cleaning which is a vital necessity in a tropical country. The outer ends of the seats are carried on cast-iron supports screwed to the floor. The seat-backs are of teakwood, reversible and specially shaped to allow of the whole seat area being used with the maximum of comfort.

The car, which is mounted on the latest pattern M.E.T. type Brush trucks, is finished in the standard colours of the company, tuscan red and ivory white, all above the waist-line being white and all below red. The trucks are painted with black anti-corrosive paint.

TRAMCARS OR OMNIBUSES?

Views of Manchester's Transport Manager.

In publishing the report of an interview with Mr. R. Stuart Pilcher, general manager of the Manchester Transport Department, the "Manchester Guardian" says that Mr. Pilcher's observations suggest that the Transport Committee is alive to the seriousness of the problem of the tramcar *versus* the motor omnibus for town work, and is dealing with it on bold and practical lines.

Mr. Pilcher said that under no circumstances could there be any question of merely abolishing the cars from the central area. It was fantastic to think that the cars converging upon the city along suburban routes could transfer their passengers to omnibuses on the fringe of the central area. On account of the difficulties of congestion alone the proposal was not worth a moment's consideration. If a particular tramway route had to be abandoned it could not be abandoned in sections, the entire route would have to go. One route—the 53 circular route—the Committee has already decided to deal with in this way. Mr. Pilcher could give no sort of assurance that it was intended to proceed gradually with this policy of conversion until omnibuses had been substituted for the entire tramway system. Nor would he say a word to suggest that it was likely that omnibuses would be substituted for tramways on any other route in the immediate future.

Mr. Pilcher stated quite frankly that the future of road transport was not at all clear. The direction in which they were likely to develop depended upon many circumstances, which at the moment were incalculable. It was one thing for a small authority to substitute omnibus services for a negligible or decaying tramway system; it was another to consider such a proposal in a large city which had sunk millions of pounds in providing an extensive tramway service which was still being operated with profit, and at cheaper fares than were possible on omnibuses. All the same, Mr. Pilcher admitted, "Those whose business it is to control public transport organizations must be prepared to go the way of the greatest efficiency and, if necessary, must be prepared to sacrifice capital sunk if it means greater efficiency in the end." The question, therefore, of the general abandonment of tramcars, he went on, must depend upon the progress of the omnibus in relation to the cost of operation and to seating capacity. Tramcars generally were being improved in the comfort of the seating accommodation and in speed. The success of the express omnibus services run by Manchester and the adjoining local authorities showed that people would pay higher fares in order to travel more quickly, but the provision of omnibuses for town or short distance traffic must inevitably mean a reduction in the average speed, and relatively higher cost of operation.

A Further Lease for the M.E.T.—At a meeting of Middlesex County Council on March 6, it was agreed to lease the tramways to the Metropolitan Electric Tramways Company for a further period of 42 years, from 1930, at a rent of £72,000 a year.

Digitized by Google

MATERIALS FOR TRAMWAYS AND TRACTION GEARS.

By Francis W. Rowe, B.Sc., M.I.M.M.,
Chief Metallurgist, David Brown & Sons (Huddersfield), Limited.

The selection of suitable materials for tramway and traction gears calls for a clear understanding as to the relative merits of various steels and methods of hardening, both as regards the difference that may be expected in the final gear and the results in service.

Publication in 1927, by the British Engineering Standards Association, of Specification No. 235 cleared the air to a large extent regarding the particular materials therein dealt with, but much ambiguity still exists concerning other grades.

Case-Hardened Steel Gears.

Case-hardened steel gear wheels (as opposed to pinions) are made from low carbon steel forgings or castings, and from the viewpoint of endurance and resistance to wear there is nothing to approach this type of gear properly made and hardened. Several essentials, often not sufficiently appreciated, are, however, necessary if the case-hardened steel gear is to give the best service.

Care in selection of the steel for this work, not only for its chemical and mechanical properties, but also for its capacity to case-harden properly is of paramount importance, and this applies whether the blank is a forging or a casting, although with greater force to the latter.

Many low carbon steels, though of correct analysis and excellent mechanical properties, show soft patches after normal carburising and quenching. Such steels, termed " abnormal " steels, have been the subject of many investigations, particularly in the United States. No thoroughly satisfactory explanation of their behaviour has yet been advanced, but it is known to be connected with the mode of manufacture. Abnormal steel is characterised by a small grain growth during carburisation, and the presence of soft or troostitic spots after quenching. Its inability to retain the fully hardened or martersitic state after quenching may be strongly or weakly marked and in some instances may be only revealed in subsequent grinding. That is, the carburised case may harden more or less perfectly, but may easily lose this hardness under grinding stresses. Steels deoxidised with aluminium before casting are very prone to this trouble. In some cases the defect may be eliminated by substituting a more drastic final quenching, *e.g.*, quenching in a water spray under pressure or by using a brine or caustic soda solution instead of water.

The relative merits of forgings and castings for tramway and traction gears is a matter on which different opinions are held. A steel casting cannot, in any circumstances, be superior to a steel forging. Ductility and shock strength are greater in a forging than in a casting, and there is less liability to hidden flaws. However, cast steel wheels from initially sound castings give very excellent service and have been used for a number of years with very few failures which could be attributed to cast steel *per se*.

Steel castings, though of higher initial cost per unit weight, prove cheaper than forgings, owing to the small weight of the rough blanks and to the fact that less machining is necessary. For very arduous duties, and especially where maximum reliability is essential, forged steel wheels are usually specified. For tramway work, however, the casting is easily the general favourite. In both cases the material for the pinions is forged low carbon case-hardening steel, unless the pinions are to be profile ground. In the latter case it is preferable to use a 3½ per cent. nickel case-hardening steel, as grinding cracks are much less liable to occur with this material than with ordinary low carbon steel owing to the tougher nature of the case.

Case-Hardening of Tramway and Traction Gears.

Many misleading statements and assertions have been made regarding the case-hardening of tramway and traction gears, particularly by foreign firms selling gears in this country.

It is, or ought to be, generally known that case-hardening raises the carbon content of the outer layers of the forging or casting from about .15 per cent. to about 1 per cent., that is to a carbon content equal to that of tool steel. A deeply case-hardened gear cannot, however, be properly called tool steel. Indeed, actual tool steel is a rather unsuitable material for pinions and is impracticable for wheels.

Although tool steel with a carbon content of .8 per cent has been used, and is to some small extent still used for pinions, it is less satisfactory than a deeply case-hardened low carbon steel. The difficulties of hardening tool steel, even with a carbon content as low as .8 per cent. without leaving unrelieved hardening stresses are great, and the final product does not wear as well as a properly case-hardened gear. The wearing properties of a carbon steel depend on its carbon content and the severity of the final quenching. In neither of these points can a tool steel gear equal a deeply case-hardened gear.

Tramway and Traction Gear Manufacture.

For most gear work the depth of the carburised and hardened case is calculated as a percentage of the tooth thickness on the pitch line, usually 15 per cent. For tramway and traction gears the best results have

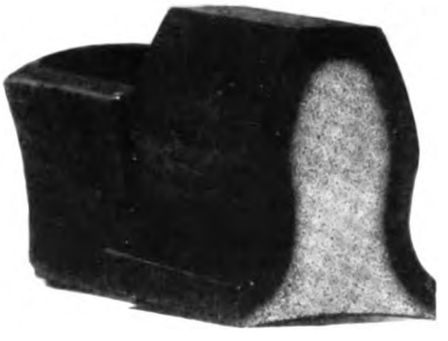


Fig. 1.—Etched Section of Case-Hardened Gear Tooth.

been obtained with a deeper case which, for this class of work, should be from 22 to 24 per cent. of the thickness of tooth at the pitch line. The production of a satisfactory case of this thickness calls for a good deal more care and forethought than is necessary when lighter cases are being dealt with.

To obtain a depth of .110 in. to .125 in. prolonged carburisation is needed. There is a strong temptation, yielded to by some manufacturers, to raise the carburising temperature above that used for ordinary work in order to shorten the carburising period,

Digitized by Google

whereas the carburising temperature should be lower than that used for ordinary work on account of the prolonged time and greater grain growth that is likely to occur and because of the risk of over-carburisation, owing to the greater depth of case. In the works of Messrs. David Brown & Sons, with which the author is connected, the temperature of carburisation is from 885° to 895° C.

It is highly important that there should be very little fluctuation in temperature during the run on cases of the depth above referred to and, from the point of view of quality of the product, the electric furnace is undoubtedly the most satisfactory. With a fully automatic temperature-controlled electric furnace the variation in temperature can be confined within closer limits than is possible with any other type of furnace.

Messrs. David Brown & Sons operate what is believed to be the largest all-electric hardening shop in the kingdom, having a total connected load for heat treatment furnaces of nearly 800 KW. Tramway and traction wheels are carburised in the largest electric carburising furnace in the country—a 200-KW. furnace with hearth 15 ft. by 3 ft. 6 in. (Fig. 2.) The carburising

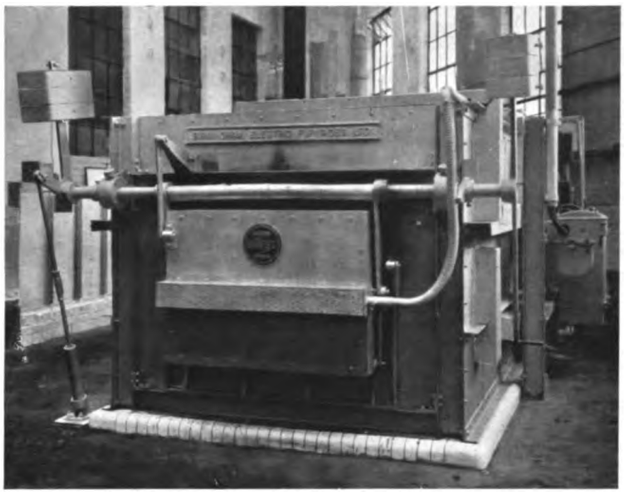


Fig. 2.—Large Electric Furnace for Carbonising Tramway Gears.

time for these wheels averages 62 hours. Only the teeth of both wheels and pinions are carburised.

Special care is needed to avoid over-carburisation, *i.e.*, formation of excess carbide (free cementite) on the edges and corners of the teeth. This does not present great difficulty in ordinary work with case depths up to .060 in., but a specially formulated carburising compound is needed, together with the employment of a low carburising temperature, with case depths in the order of .120 in.

If the carbon content exceeds 1 per cent. at the corners and edges of the teeth trouble is likely to occur in service owing to brittleness and exfoliation of the case. This is particularly true if special methods for refining the case are not used after carburisation. It should, however, be remembered that drastic refining treatment after carburising is liable to increase the amount of distortion in the wheel. The greatest disadvantage of case-hardening is the warping which parts so treated undergo, and it is essential that this be kept to the minimum.

After carburising, the gears, having been allowed to cool slowly in the boxes, are given special heat treatments to refine and harden both case and core. All quenching of wheels is done in special jigs to minimise distortion as far as possible and a special quenching medium is used. The corners and extreme ends of the teeth are left in a slightly less hard condition than the other portions to ensure absolute freedom from brittleness and remove all risk of the corners fracturing in service. After final quenching the gears are subjected to a prolonged low temperature tempering to remove all hardening strains without in any way decreasing the hardness. Pinions are treated similarly to the wheels except that there is, of course, no necessity for jig quenching.

All gears are thoroughly blasted with diamond steel grit, not only with the object of removing scale, but principally to show up soft spots or hardening defects. Under this treatment, with correct blast pressure and even treatment of all parts of the wheel, it is comparatively easy with a little experience to pick out any local imperfections. The fully hardened portions are unroughened by the shot, but portions softer than standard show a matted surface easily distinguished. Brinell hardness tests are then taken with the combined object of checking the depth of case and its hardness. With a case of less than the standard depth brinelling at 3,000 kilograms produces small cracks around the impression, due to collapse of the core. The depth is, of course, previously checked from test bars packed with each box. The wheels are then gauged for pitch errors and concentricity.

As previously mentioned, the disadvantage of the case-hardened gear is the inevitable distortion. No matter how carefully the gear is handled throughout successive stages of heat treatment, some warping is bound to occur and this reveals itself in noisy running. It is, of course, possible and practicable to correct hardening distortion on both wheel and pinion by profile grinding, but in the case of the wheel this is rather an expensive matter.

"Shorter" Hardened Gears.

Where freedom from noise is of paramount importance, recourse must be had to other materials and other methods of hardening, although with some sacrifice of the hard wearing and long enduring properties associated with the case-hardened gear.

The best alternative to the case-hardened wheel and pinion is the "Shorter" hardened wheel, running

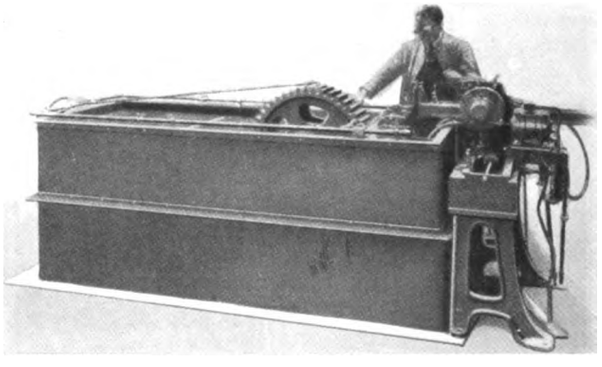


Fig. 3.—The "Shorter" Machine Hardening a Cast Steel Gear Wheel.

with a case-hardened pinion, profile ground. The "Shorter" process of hardening (Fig. 3) is effected by passing an oxy-acetylene flame over the surface of the teeth, thus raising them to a temperature above the critical point. A water jet which follows the oxy-acetylene flame quenches the steel immediately it has

Digitized by Google

been raised to the correct temperature. Surface hardening of steel by means of an oxy-acetylene flame has been practised for a number of years, but the "Shorter" process represents the first serious attempt to realise the full possibilities of flame hardening. The development of special types of burners in conjunction with mechanically controlled positioning and movement of the flame has put the flame hardening process on a new plane as regards uniformity of hardening of the treated surface.

The macrograph in Fig. 4 (a section of a wheel treated by the "Shorter" process) shows the location and depth of hardening usually adopted for tramway

Fig. 4.—A Macrograph of sectioned gear surface-hardened by the "Shorter" Process.

and traction gear teeth. The location and extent of the hardened surface can be selected at will and the depth of hardening can be controlled to suit various requirements from .030 in. to .125 in. The steel most generally used for work to be hardened by this method is a plain carbon steel with from .50 to .60 per cent. carbon.

Blanks for tramway and traction wheels to be hardened by the "Shorter" process may be either forgings or castings, and the remarks regarding their relative merits are similar to those relating to case-hardening steel.

The most valuable feature of the "Shorter" hardening process is that parts so treated suffer very little distortion. The main body of the wheel is immersed in water during treatment and all teeth adjacent to that being hardened are kept cool by streams of water.

The degree of hardness obtained by this method is slightly greater than would be achieved if the wheels were fully water quenched owing to the rapid cooling action of the following water jet. Pinions which have to be profile ground should be made from $3\frac{1}{2}$ per cent. nickel case-hardening steel and not from the low carbon case-hardening steel usually employed, although the latter is quite satisfactory when the pinion is to remain unground.

Low carbon case-hardening steel is very prone to develop hair cracks in grinding even when the greatest care is exercised. Nickel steel is much less liable to give trouble in this respect. An example of hair cracks in a ground tooth in a low carbon case-hardened steel is shown in Fig. 5. These have been revealed by the magnetic method.

Split Wheels.

Of these two types of gears, *i.e.*, case-hardened and surface hardened wheels running with a case-hardened pinion only the latter process is suitable for split wheels, as when a wheel in halves is case-hardened the distortion is always greater. Since the more general adoption of hardened gears, however, split wheels are rapidly passing out of favour. They were desirable

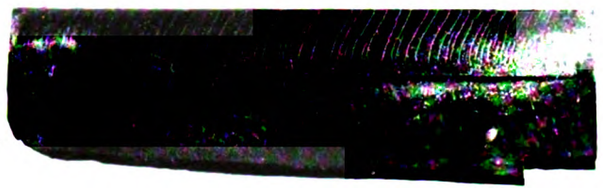


Fig. 5.—Grinding Cracks in ground case-hardened Tooth revealed by the Magnetic Method.

before hardened gears were introduced since, owing to their short life and the need for frequent replacement, the necessity for removing the axle and pressing off the wheel was obviated. The life of hardened gears is practically equal to that of the axle (which generally has to be removed from service on account of fatigue) and the question of easy removal from the axle does not arise.

Unhardened Gears.

Since case-hardening and surface hardening of gears adds to their length of life in a manner which more than justifies the extra cost of such treatment, unhardened gears are being less used than formerly. There are, however, special cases where the extra cost of hardened gears is not expedient, and in such cases the best combination is a .40 to .50 per cent. carbon steel casting running with a .50 to .60 per cent. carbon pinion, surface hardened by the "Shorter" process. The ordinary type of soft cast steel wheel of 26 to 30 tons tensile is not worth the cost of machining owing to its

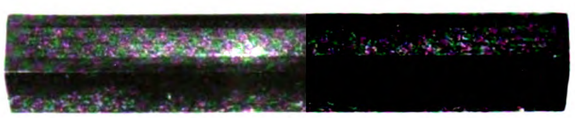


Fig. 6.—Longitudinal Section of Gear Tooth hardened by the "Shorter" Process.

poor durability and consequent short life. It is much more economical to pay the little extra for steel of fairly high carbon content. Neither do unhardened pinions of any material give a satisfactory life, and the cost of either case-hardening or surface hardening amply repays the user.

Shrunk-on Gear Rims.

Nickel chrome steel rims or high carbon (.60 to .70 per cent.) rims, shrunk on to cast iron or cast steel centres, in which the teeth are cut in the oil hardened and tempered condition (60 to 70 tons tensile) do not give service comparable to case-hardened or surface hardened wheels, particularly when their cost is taken into consideration.

Other materials and other methods of hardening have been proposed and used from time to time, but the author's long experience with these gears suggests that only those methods enumerated above give service consistent with their cost for tramway and traction work.

Digitized by Google

LONDON CIRCULAR TRAMWAY JUNCTION.

TRAFFIC IMPROVEMENT COSTING £1,913,000.

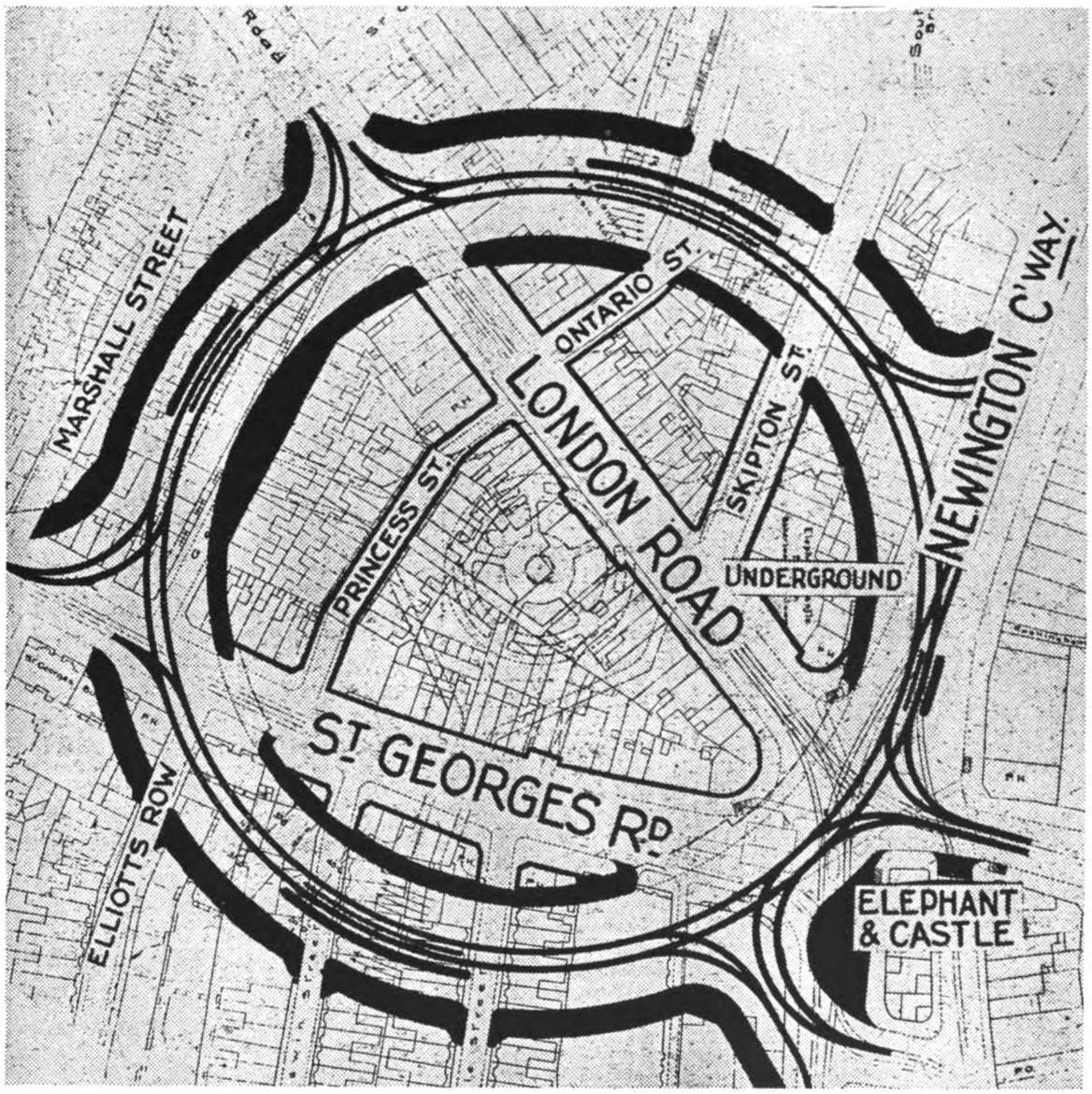
At the meeting of the London County Council on February 11, the Improvements Committee presented a proposal for improving traffic conditions at the Elephant and Castle junction in South London, where there are six roads, each having a double track tramway.

The Committee's report was as follows :--

The Ministry of Transport in July, 1929, suggested a scheme involving the acquisition of property inside a circle of approximately 394 ft. in radius. Under this scheme a circular road 120 ft. in width, with a carriageway of 87 ft. 6 in., would be constructed within the circumference of the circle and the remainder of the land within the circle would be redeveloped, and three connecting roads to the main circular road would be constructed. The existing foot passenger subways would be extended to form a system of subways so that pedestrians could cross from side to side under the streets and buildings. A double line of tramways would be laid in the circular road and the whole of the traffic, vehicular and tramway, would be one-way traffic circulating round the road in a clockwise direction.

The Ministry's scheme, which must be considered not only as a traffic scheme, but also as a development scheme, appealed to us considerably by reason of its comprehensive nature, but in view of its heavy cost, which was estimated at £3,150,000 gross, including re-housing, and especially having regard to the large present and prospective financial commitments of the Council upon street improvements and bridges, we were impelled to seek a solution of the problem in a scheme which, while retaining a road formation similar to that adopted in the Ministry's scheme, could be carried out at a much less cost.

Acting under our instructions, the chief engineer and the valuer have submitted to us an alternative scheme showing a circular road of the same width and radius as that shown in the Ministry's scheme but sited in such a position as to bring certain valuable properties



Preliminary Plan of Circular Road, 87 ft. in width, which is to be constructed at the Elephant and Castle junction, in South London.

Six double track tramways converge at this point, and all traffic is to be on the one-way system.

Digitized by Google

included in the latter scheme outside the circle, and to avoid interference with the underground stations of the City and South London Railway and the Bakerloo Railway, situated within the area. Unlike the Ministry's scheme, the alternative scheme does not necessitate the re-development of the area within the circle. As regards the comparative effect on the displacement of persons of the working class, the Ministry's scheme would, according to estimates prepared, displace 850 persons, as compared with 1,370 persons who would be displaced under the alternative scheme. This latter figure would be increased by 680 were the area within the circle re-developed.

We are advised that the alternative scheme would be as effective as the Ministry's scheme for reducing the present delays which are due to cross traffic at the Elephant and Castle. On the assumption that the land within the circle is excluded from the scheme, the estimated cost of the alternative scheme, including re-housing, is £1,913,000. We have arrived at the conclusion that the Council should proceed with the alternative scheme, and seek the necessary powers this session by means of a " late " Bill. We anticipate that the Minister of Transport will see his way to concur. We have informed the Highways and Parliamentary Committees of our proposals. The solicitor has advised that the Council has power to promote the necessary legislation to carry the scheme into effect without having recourse to the provisions of the Borough Funds Acts. We submit a recommendation for suspension of Standing Order 226 (*a*), which precludes submission of recommendations for legislation in any session of Parliament other than that next ensuing. We recommend--

That the operation of Standing Order 226 (*a*) be suspended and that, on the understanding that the Minister of Transport will contribute 75 per cent. of the cost of the scheme, application be made to Parliament in the session 1929–30 for powers to carry into effect the Elephant and Castle improvement scheme, as shown on the plan.

The recommendation was adopted.

Scottish Tramways and Transport Association.—The eighth annual conference of the Scottish Tramways and Transport Association will be held at Atholl Palace Hotel, Pitlochry, on Friday and Saturday, May 23 and 24. The arrangements are in the hands of Messrs. J. H. Shepheard, Dunfermline (Chairman); D. P. Morrison, Dundee; W. J. H. Penman, Perth; and R. Watson, Edinburgh (hon. secretary and treasurer).

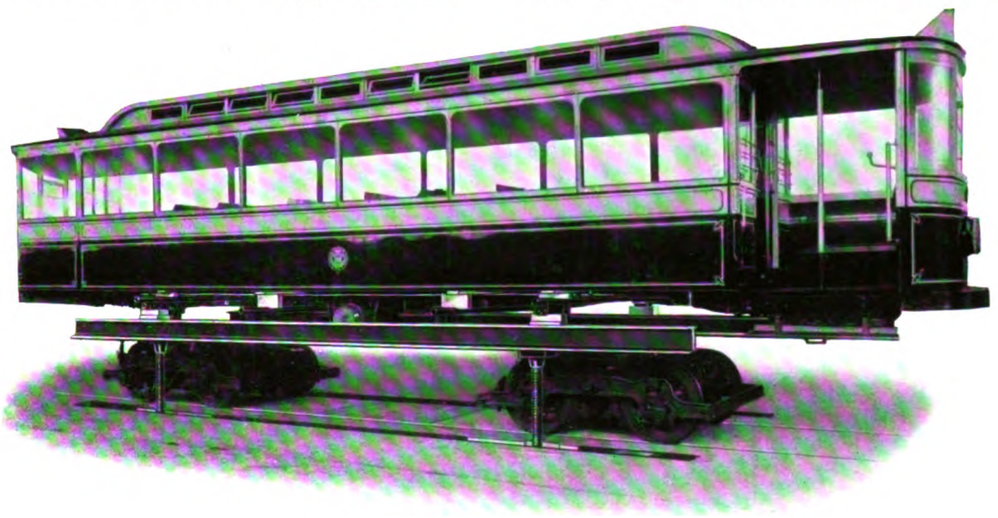
TRAMCAR HOISTING APPARATUS.

The illustration below shows a quick and up-to-date method of removing tramcar bodies from their bogies or trucks. This lifting apparatus is of British design and is manufactured by the Equipment and Engineering Co., Ltd., of 2 and 3, Norfolk Street, London, W.C.2. The E. & E. tram hoisting apparatus, as it is called, has been designed for removing any type of tramcar body without the use of any additional jacks or beams such as have necessarily to be used in conjunction with all types of hand-operated gear.

It is only necessary to place four tubes at points most suitable for lifting and to lock the adjustable vee blocks to prevent any movement or slipping. Having made this small amount of preparation and switched on the elevating motor, the tramcar body is raised in only two minutes to the full extent of the apparatus—that is about 6 ft.

An automatic cut-off is provided, which enables the hoist to be raised to any pre-determined height, and, in addition, fool-proof switches cut the motor out of circuit at the top and bottom limits of the hoist. When not in use the lifting girders can be lowered to the floor level, thus no valuable space is lost.

The appliance consists of two girders mounted on four lifting screws running in enclosed damp and dust-proof bearings working in a lubricating medium. The four bearings are under simultaneous control from a central gearing, which is actuated by means of a 10 B.H.P. reversible motor. This arrangement gives a steady, even lift of the car body and prevents distortion whilst being elevated or lowered.



Tramcar Hoisting Apparatus.

The hoist is capable of lifting 10 tons easily, and the girders are 26 ft. long. All parts are of robust construction, and high grade cut steel gears are used.

Trolley Omnibus Powers for Derby.—The Select Committee of the House of Commons on March 6 considered the Derby Corporation Bill, the provisions of which include power to run trolley omnibuses along routes in certain outside districts. Mr. J. W. Horton, county surveyor of Derbyshire, in giving evidence against the Bill, said that the poles for trolley vehicles in his opinion would be dangerous to traffic on country routes. The Committee granted powers asked for within the borough, and on six of twelve outside routes.

Digitized by Google

LEEDS NEW DOUBLE-DECK TRAMCAR.

SOME INTERESTING FEATURES INCORPORATED.

Leeds City Tramways and Transport Department has recently put into service a new type of double-deck tramcar in which some interesting features have been embodied. That of most importance is, perhaps, the fact that the usual step from the platform into the lower saloon has been dispensed with by maintaining the same floor level from end to end of the car.

Another interesting departure is that the sides of the body, beneath the lower saloon windows, are carried straight down instead of being inswept to meet the width of the truck as in the older design of car. This alteration, besides enhancing the car's appearance, has provided an important asset in the way of extra room in the lower saloon. As a result of this the fitting of transverse seats has been very much simplified by the ability to bolt them to the body stiffening plate, which stands thirteen inches above the floor and runs the full length of the saloon.

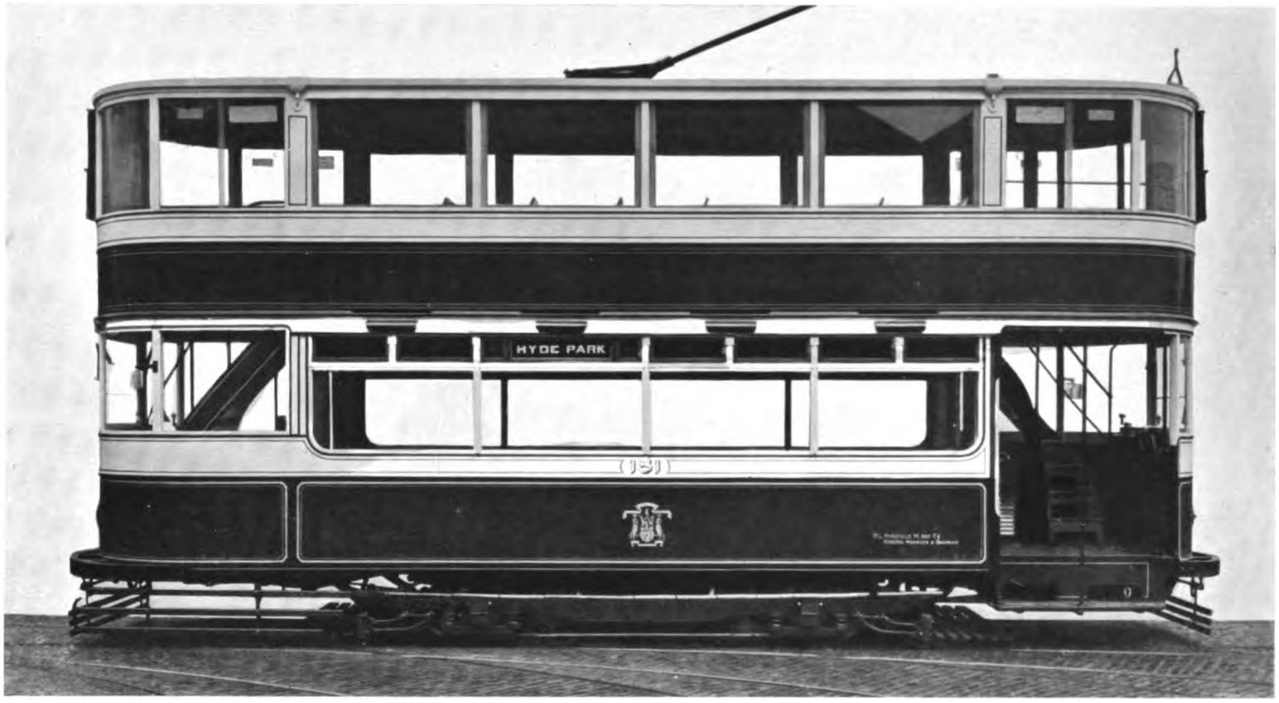
The improved type of staircase which has been fitted involves a turn of 90 degrees only from leaving the platform to entering the upper saloon. The stairwell is enclosed by a vestibule of light construction, with a hinged door which swings back over the stairs and fastens to the vestibule frame. It will be noticed from the illustration of the car that the curving of the corner glasses of the platform and upper saloon to the radius of the dash has reduced the number of pillars.

Ventilation of the lower saloon is achieved by means of fanlights and air extractors fitted over the windows. In the upper saloon, the side windows are arranged to be lowered by means of a neat ratchet arrangement. An aluminium draught shield running along the outside of the cant rail permits the windows to be dropped about 2 in. without causing objectionable draughts.

A specially selected type of spring seat upholstered in leather, with reversible backrest (the arrangement of which is shown in the illustrations) is used in both saloons. A pleasing appearance is given by the floor coverings of both upper and lower decks. They are of compressed cork tiles $\frac{3}{8}$ in. in thickness which, in addition to the comfort they afford to passengers, are very easily cleaned. Another important provision from a hygienic aspect is the covering of handpoles and rails with black Doverite. Air bells are fitted in both saloons, the pushes being of the flush type. Ample lighting is provided, on both upper and lower decks, by means of bulkhead type fittings with 9 in. diameter frosted glass bowls. All interior fittings are in oxydised copper finish.

A gutter is carried round the edge of the roof, and is provided with four gulley cups which empty themselves under the platforms by means of copper tubes neatly concealed in the corner pillars of the body.

The driving platforms are protected by safety glass windscreens equipped with screen wipers, and the rear mirrors with which the driver has been provided are a valuable adjunct. All controls are chromium plated.



New Double-Deck Car—Leeds City Tramways.

A metal dash panel is fixed in front of the driver, and mounted in it are three air pressure gauges illuminated at night by a hooded light.

The body, which was built in the Kirkstall Road Works of the Leeds City Tramways and Transport Department, is framed in teak and panelled in aluminium $\frac{1}{16}$ in. in thickness. It is built on a steel underframe formed of channel and angle sections rivetted together. The chief dimensions and particulars are :—

Length over fenders	31 ft. 6 in.
Length of body	18 ft. 0 in.
Width over panels	6 ft. 11 in.
Height over trolley plank	15 ft. 3 in.
Height inside lower saloon	6 ft. 4 in.
Height inside upper saloon	5 ft. 11 in.
Seating capacity (lower saloon)	23
,, ,, (upper saloon)	37
Total seating capacity	60
Total unladen weight	13 tons 10 cwts.

The body is mounted on a Smith pendulum truck, supplied by the Malleable Steel Casting Co., Ltd., of

Digitized by Google

Pendleton. It is fitted with 27-in. diameter wheels, and the wheelbase is 8 ft. 6 in. The gears and pinions are of the single helical type, having a ratio of 59/16, or 3.68 to 1. The axle journals, 4 in. in diameter, run in bearings of anti-attrition bronze.

Interior of Upper Saloon.

The wheel brakes are arranged for application either by air or mechanical operation, and the track brake is designed for combined air and magnetic operation, operation by air alone, or mechanical application.

The brake equipment was supplied and fitted by Maley and Taunton, Ltd., of Wednesbury. This consists of a magnetic track brake, which may also be operated by air, and an air wheel brake. The

Interior of Lower Saloon.

valves for the air track brake are actuated by the controller handle. The air wheel brake is operated by a separate handle. The two air brake systems are interconnected through a valve which automatically discharges the air wheel brake when the air track brake or magnetic brake is applied. For coasting steep gradients the usual hand wheel on platform is provided for mechanically applying the track brake.

The object in view with this brake equipment is to permit of the use of the air wheel brake for all normal stops when the rail conditions are favourable. The air track brake and magnetic brake is held in reserve for emergency stops or for service stops under "greasy" rail conditions.

The feature, that if in an emergency stop both air wheel and air track and magnetic brakes are applied simultaneously, only the air track and magnetic brake is effective, is a very valuable one, for it eliminates the danger of the skidding wheel. The use of the air wheel brake when rail conditions are good also saves undue rail wear as compared with magnetic or track braking, especially at regular stopping places.

Controllers and motors were supplied by the General Electric Co., Ltd. The motors are of the lightweight type, No. W.T.28 S., and are rated at 50 H.P. each.

INTERNATIONAL TRAMWAYS, LIGHT RAILWAYS AND OMNIBUS UNION.

Programme of Congress at Warsaw.

As announced in our issue of August 15 last, the executive council of the Union Internationale de Tramways de Chemins de Fer D'Interét Local et de Transports Publics Automobiles has accepted the invitation of the City of Warsaw to hold the twenty-second International Tramway Congress in that city. The President of the Republic of Poland will be the honorary president of the Congress, which will meet from June 29 to July 5, 1930.

The subjects to be discussed include:—

(1) Methods and Arrangements for Supplying Energy to Electric Tramway Systems—Comparisons between the different systems of sub-station equipment suitable for transforming high tension alternating current into continuous current for feeding electric tramways or light railways.—MM. A. Allard, manager of the Societe Nationale des Chemins de fer Vicinaus, Brussels, and Henri Coens, chief engineer of sub-stations and distribution of the Brussels Tramways Company, Brussels.

(2) Improvements Effected in the Construction of Rolling Stock for rails and roads with a view to increasing the comfort of passengers, facilitating the service of the staff, and improving the working.—Dr. of Eng. Ph.Kremer, manager of the Frankfort municipal tramways and omnibuses, Frankfort.

(3) The Employment of Heavy Oil Motors on Rails and Roads.—M. H. Arnold, managing director of the Vestischen Kleinbahn, Herten, Germany.

(4) Evolution of Electrical Equipment of Rolling Stock (suspension, high speed, ventilation compounding).—M. H. Werner, vice-manager of the Vienna municipal tramways, Vienna.

(5) Tramway Tracks and Their Construction.—M. le Comm.Ing. Gaetano d'Alo, general manager of the municipal tramways of Milan.

(6) Means for Facilitating Passenger Traffic (light railways, tramways and motor omnibuses): (*a*) fare collecting and sales of tickets in advance; (*b*) guides, time-tables and publicity; (*c*) offices, shelters, platforms.—M. L. Bacqueyrisse, managing director of the Societe des Transports en Commun de la Region Parisienne, Paris.

(7) Comparison of Systems of Public and Private Transport (light railways, tramways and omnibuses) from the technical, economic and operating points of view.—M. P. Nestrypke, manager of the tramways of Poznan, Poznan, Poland.

The following communications will also be presented:—

A Comparative Study of Underground and Surface Light Railways, including capital cost, working, traffic, etc.—M. E. Jayot, director of transport, Department of the Seine, Paris.

Employment of Light Metals in the Installation of Overhead Lines.—M. Z. Sekutowicz, engineer and manager of the technical services of l'Omnium Lyonnais, Paris.

A Study of the Phenomena of Electrolytic Corrosion.—M. R. de Podoski, engineer, professor of the Warsaw Polytechnic School.

New Experiments in Tramcar Braking.—M. Pforr, manager of the Berliner Verkehrs A.-G., Berlin.

All communications with reference to the Congress should be addressed to the General Secretary, M. A. de Backer, 112, Rue du Trone, Brussels.

Digitized by Google

THE
Tramway and Railway World
FOUNDED IN 1892.
Offices:
AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2
Telephone: TEMPLE BAR 2948
Telegrams: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD *can be obtained at the following rates—*

FOR THE UNITED KINGDOM—Twenty-five Shillings per annum.
FOR ALL PLACES ABROAD—Twenty-five Shillings per annum. Postage to Canada 6s.; to other places abroad, 9s. 6d.
Single Copies—One Shilling (Postage, 2 pence—abroad, 5 pence).
All back numbers—Two Shillings.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS.

The Editor will consider contributions offered for publication in THE TRAMWAY AND RAILWAY WORLD (including the Omnibus and Coach Section) by those conversant with the subjects that come within the scope of this journal. All information of a practical character relating particularly to the engineering and operating branches of transportation will receive prompt attention. Original illustrations will also be welcome.

LONDON, MARCH 13, 1930.

Municipal Omnibus Situation.

The many local authorities in Great Britain who already possess statutory powers to work omnibuses within their areas, and in some cases to a limited extent beyond their municipal boundaries, may congratulate themselves on the position which their demand for further facilities has reached. Several years ago the Municipal Tramways and Transport Association inaugurated their campaign to secure for municipalities already enjoying statutory transport powers, the right to extend their services without having in every case to incur the trouble and expense of promoting a Bill in Parliament to enable them to do so. The local authorities asked simply to be put in the same position in the matter as omnibus companies now occupy. Some three years or more ago the luck of the Parliamentary ballot enabled the municipalities to bring before the House of Commons for second reading their Omnibuses Bill which was designed to give them the freedom that they desired. The measure was, however, defeated by the narrow majority of five votes. No further opportunity arose till the present Parliamentary session, when two opportunities came together. The last Government had long promised to introduce a much-needed Road Traffic Bill, dealing with a wide variety of motor traffic subjects, but had failed to do so. The present Government introduced the Bill and added to it provisions for facilitating the grant of powers to local authorities to run omnibuses, similar to the provisions of the Omnibuses Bill. By luck again in the ballot the latter Bill came on for second reading and was carried by a large majority. Almost simultaneously the House of Lords, in which the Road Traffic Bill was first introduced, threw out the part of it relating to facilities for municipal omnibus extension. The House of Commons have replied to this by instructing their Committee on the Road Traffic Bill that they have power to consolidate it with the Omnibuses Bill. Thus the matter stands at present; but it seems probable that when the dispute between the two Houses is ended, it will be found that the Lords have given way. Their action on the Road Traffic Bill was carried out in a very small House, but a dispute having arisen, a larger attendance in the House of Lords may modify the previous decision.

The Future of Road Transport.

Even if it be assumed that the municipalities will get all that they want, the future is full of uncertainty. Under the Road Traffic Bill the power of licensing omnibuses is to be taken from all local authorities, both urban and rural, and is to be handed over to independent area commissions, each of which will be the licensing authority for a large area. Such a commission may be trusted to take comprehensive views and to regard general needs and interests. Small local ideas and jealousies will doubtless be suppressed. We may expect a repetition of the suppression of the little electric generating stations by means of the national electric supply scheme. In fact the process of what is now called rationalisation may be expected, including the abolition of unnecessary competition and the promotion of co-ordination and co-operation. The municipalities will not be allowed to run their omnibuses where they like all over the country; they will have to fit in as part of a co-ordinated scheme. Then there is the coming great development of omnibus services by the railway companies. These companies with their vast resources have, within the short time since they obtained road powers, already obtained substantial—in some cases controlling—interests

Digitized by Google

in many omnibus companies, and have entered into working agreements with several omnibus-owning local authorities. The process is by no means complete—far from it. So there is a nice little problem before all concerned. Here, there will be four large factors—the municipalities, the large omnibus companies, the railway companies, and the area licensing commissioners. Probably the latter will be able, sooner or later, to evolve order out of the present chaos. The purpose of the commissioners will be to act in a judicial capacity. Municipal ambition and private individualism will be subordinated to the public interest. The improvement and development of road transport will be the alpha and omega of the commissioners' work. That, at all events, is the idea ; and it may be hoped that the idea will be developed with courage and wisdom. Much will depend on the men selected as commissioners and to their selection the Minister of Transport may, we think, be trusted to give adequate care. He has since his appointment shown himself capable of dealing with contentious matters with an impartial and judicial mind, and he regards the problem of transport as of the utmost importance to the community.

British Street Railways.

It has, perhaps, been unfortunate that the rail tracks laid in streets in this country have been called tramways. The etymology of the word has been disputed, but there is no doubt that the term was originally applied to rude rail constructions for the local conveyance of coal in connection with mines in the north-east of England. Times have moved since then. In America rail lines laid in streets have always been called street railways. The term is more cumbersome than that of tramways, because it involves two words instead of one, but it is more definite. It is impossible to change that nomenclature in this country now ; but at all events it is possible to modify the mental attitude of the public to suit changing conditions. What is called a tramway is an electric railway laid in the street—one of the highest developments of local passenger transportation. It has developed from the old horse-tramway to such an extent as to be unrecognisable by comparison. A point has now been reached when a further radical advance is called for. Under the Road Traffic Bill, now before Parliament, omnibuses, if fitted with pneumatic tyres, are to be allowed a speed of thirty miles per hour. This is general ; there is no differentiation as to speeds in crowded streets or on rural roads. In the past tramcar speeds—not legislated for generally—have been subject, originally to regulations by the Board of Trade, now by the Ministry of Transport, to maximum speeds varying with local and traffic conditions. If omnibuses are to be allowed to travel anywhere at thirty miles an hour, a like privilege cannot be denied to tramcars. In both cases the penalties against reckless driving would apply. The local restrictions on tramcar speeds will have to go ; no legislation is required for that purpose ; the fiat rests with the Ministry of Transport. The situation is rapidly changing. Not only in London, but in the other large towns throughout the country enormous additional office blocks are being erected. In each of such blocks hundreds of persons are or will be employed. They have to be taken to business in the morning and taken to their homes in the evening. The " rush hour " traffic is being intensified. Nothing can do more to help in this direction than an intensified tramway, or as we would in the circumstances prefer to call it, street railway service. Cars of greater seating capacity, comfortably upholstered for passengers, of high speed, and with fewer stopping places are among the desiderata. People employed in the central districts tend to live farther out in the suburbs. Daily journeys are longer, but increase of time for them must be kept down. So it is that for our British street railways speed and still again speed is a prime requisite. The tramcar at any given speed is a safer vehicle from the point of view of the pedestrian and of other vehicles than any automobile. Thus in the rapidly coming days speed and comfort will be more and more demanded. More and more also should the public be impressed by the publicity departments of tramway authorities that a tramway is a railway in the street.

Notable Increases in Tramway Revenue.

Except in the cases of some towns associated with four industries particularly the tramway traffic returns for the year that will end on March 31 show gratifying increases. Notable additions to the earnings of the tramways have been made

Digitized by Google

in fifty-six places. This is the more encouraging because in numerous cases these higher receipts have been secured together with higher receipts for motor or trolley omnibus services in the same town. Decreases on the tramway side are shown in fifteen towns, but in most of these the losses have been made up in gains on the omnibuses. Taking all the municipal undertakings there is every likelihood that the aggregate increase will reach one million sterling. Leaving out of the account the Belfast increase, which is mainly due to the disappearance of unrestricted competition, the greatest advance has to be credited to the London County Council undertaking. Here the addition for the full year is likely to total £80,000, giving a net profit of £50,000. This welcome change may to some extent be attributed to the fact that the London Traffic Act prevents the unrestricted multiplication of omnibuses. There has, however, been no diminution in the competition, for the great majority of the omnibuses have been fitted with top covers, thus more than doubling their seating capacity in wet and cold weather. Provincial centres where startling recoveries have been made on the tramway side include Edinburgh, Glasgow, Birmingham, Newcastle, and Manchester. While in three of these places the result is in part due to the more effectual countering of competition, and to improved local trade conditions, there is another factor that should not be lost sight of both in the Metropolis and in the provinces. That is the improvements in the seating of the cars, their speed and lighting. Doubtless it is the country-wide success of this progressive step, and of the operation of their own fine experimental cars, that has led Lord Ashfield to announce a great reconstruction programme for the London company tramways.

GOVERNMENT-OWNED TRAMWAYS.

First Decade of Melbourne and Metropolitan Tramways Board.

The Melbourne and Metropolitan Tramways Board, which was constituted by the Government of Victoria on July 2, 1919, under the chairmanship of Mr. Alex. Cameron, is having its charter reviewed by the Government with a view to giving it a permanent character. An indication of the course the Government is likely to take was given towards the close of 1929, when the Board was granted an increase of £750,000 in its borrowing powers. The money is to be expended on the conversion of the North Fitzroy and South Melbourne cable tramways to electric traction, the duplication of several other tracks and the provision of equipment.

The Board, at the outset took over various tramway trusts in Melbourne and the metropolitan area, and proceeded to electrify the cable lines. Concurrently the Board prepared and adopted a general scheme for the development of the tramways. Power conferred on the Board to operate omnibuses, was intended only to be subsidiary to its main function and its exercise required the express consent of the Governor-in-Council. The Act further provided that no tramway could be abandoned until after a notice expressing that intention had lain on the table of both Houses for 24 days. Parliament can thus veto any proposed abandonment.

World-Wide Investigation—Pirate Omnibuses.

Before drawing up the scheme of tramway development the Board sent a questionaire to the leading undertakings in Great Britain, Canada, and the U.S.A., to ascertain the amount of mileage laid down in cities per 100,000 of population, the rate of growth of the respective cities, and their proposals for extensions, as a guide in determining the extent and period of the Melbourne scheme. Local studies included the best methods of unifying the various systems and welding them into one complete unit giving through transit from one part of the metropolis to the other. The chairman of the Board also undertook a tour of investigation abroad. In 1923 the proposals were made the subject of an inquiry by the Parliamentary Standing Committee on Railways, and in due course the scheme was adopted.

About the middle of 1923 a number of companies established fleets of motor omnibuses and proceeded to pirate the cable tramway routes, making considerable inroads on the passenger traffic and causing great damage to the roads, for which the various municipalities received no compensation. This state of affairs led to the passing of the Motor Omnibus Act, 1925, and the imposition of a seat tax, varying from £4 10s. per seat for solid-tyred and £3 7s. 6d. per seat for pneumatic-tyred omnibuses within three miles of the general post office, to £2 5s. for solid-tyred and £1 5s. per seat for pneumatic-tyred, omnibuses outside that area. The proceeds of the tax are divisable between the municipalities in whose territories the omnibuses operate, on a basis fixed by the Minister of Public Works, proportional to the number of miles run in each municipality. Within a few weeks after the passing of the Act, most of these companies went into liquidation.

To return to the early history of the Board it should be mentioned that in 1920 there was a universal demand in Australia for increased wages, due to the rapidly increasing cost of living. In the Board's case the total cost of higher wages and other concessions amounted to £350,000 per annum. In order to partially meet these increased costs, fares were increased on two occasions, the average increase over the whole period being 30 per cent., a sum that did not nearly meet the increase in wages alone. Another adverse circumstance was that in consequence of the electrification of the suburban railways between 1918 and 1923 a large number of passengers were attracted from the tramways to the railways. The number of private motor cars used in street transport rapidly increased, the result being a further decrease in the tramway passengers.

What the Board has Accomplished.

As many as sixty applications were received from municipalities for tramway extensions totalling 162 miles, but only a few of the requests were reasonable. These have been given effect to. An Act was obtained in 1923, enabling municipalities to guarantee the Board against loss on the operation of a new tramway for five years, but only one municipality so far has availed itself of the privilege. Nevertheless the demand for extensions became more and more insistent from year to year, notwithstanding the financial burdens which had been placed upon the undertaking by the State Legislature. Still, there has been a steady increase in the track mileage, according to figures given in a recently published brochure dealing with the progress and development of the undertaking. Beginning with 201 single track miles, the Board in September, 1929, had 270 track miles of tramways in operation.

Mr. Cameron records that with the help of a highly-trained technical staff, who have at all times rendered loyal and disinterested service, the work of unification, co-ordination, conversion and extension has proceeded uninterruptedly. Nine sections have been converted at a cost of £762,413, some of these conversions, together with new works, making possible the through-routing of cars from south to north.

Five examples of long runs are cited, the distances varying from 11.761 miles to 9.980 miles. Extensions, twenty in number, involved an outlay of £667,866. For the general improvement of the system many duplications of single track have been effected, and additional loops and crossovers constructed at an expenditure of over £300,000. On new tramcar depots £161,000 has been spent, on completing depots taken over £10,500, on extensions to depots £91,600. on converter stations £45,000, while £103,600 has been expended in contributions to bridges, street improvements, etc.

In conformity with the practice followed by certain of the Municipal Tramway Trusts, the Board continues to provide lighting for 80 miles of street traversed by tramways at a cost of £9,000 annually. Concessions to disabled soldiers, police in uniform,

Digitized by Google

workmen, blind persons and school children have a monetary value of over £30,000 per year. Wattle Park, which the Board purchased for £9,000 and is developing as a pleasure resort, has been visited by as many as 30,000 people in a day.

Finanacial Burdens.

Generally the best roads in the suburban districts are those with tramways. The Board makes and maintains that portion of the roadway between the outer rails and 18 in. on either side, thus saving the municipalities the expense of making and maintaining on the average 17 ft. in width of roadway. This is equal to an expenditure estimated at £1,500,000, with an added annual expenditure of £250,000 for maintenance, interest, etc. Rates on the tracks amounting to £15,000 a year are paid by the Board, which has expended £650,000 in maintaining street surfaces for the use and benefit of non-tramway traffic.

Under the superseded Suburban Tramway Trusts the most that was required to be set aside to the reserve fund was 2½ per cent. per annum upon the renewable portions of the undertakings. Under the Board's Act, the minimum was 4 per cent. upon the capital cost of the undertaking—a tremendous difference. Two other burdens were also imposed. The first was the taking of £61,000 from the revenue in order to fulfil the estimate by the Government that £827,000 would be received from the Cable Tramway Board and paid to the Melbourne and Metropolitan Municipal Loans Redemption Fund. The second was the contribution to the State in respect to the Fire Brigade Board, the Infectious Diseases Hospital and the Licensing Fund. For the year which closed on June 30, 1929, this payment reached £118,000.

In all the Consolidated Revenue has received from the Board £971,931. If this money had been available for tramway purposes the utility of the undertaking could have been greatly increased. Extensions could have been effected, the rate of conversion of the cable system could have been hastened and obsolescent cars replaced by modern designs.

Use of the Motor Omnibus.

The Board is using motor omnibuses during the conversion of the cable tramways and for the development of outlying areas of the metropolis, but the advantage of this vehicle is offset by the heavier operating charges. A report on the subject of replacing the tramways by petrol omnibuses was presented in 1927 by the Parliamentary Committee on Public Accounts. The Committee expressed the view that the total additional cost to the community would be £1,878,500, and that the suggestion could not be entertained.

A LAYMAN'S APPROACH TO PHILOSOPHY.

Individual Understanding By Emile Garcke.
(London: Electrical Press, Ltd.)

The sub-title of this book is: "A Layman's Approach to Practical Philosophy"; and describes it with great felicity. The author treats philosophy as a "summit" attainable only by persons of unique intellect. "I am writing this book," he says, "as an introduction to the pursuit of philosophising, rather than as a primer of philosophy"; and not with the purpose of propounding "a philosophical thesis; but to indicate in an introductory and elementary way a method of organising individual understanding with a view to philosophical study." In a happily-framed paragraph, to be found in his prologue, Mr. Garcke delivers himself as follows:—

> "It may be doubted whether any one who has not had the advantage of academic training can, amid the multifarious duties of a busy life, realise fully the great wealth of learning provided by ancient and modern philosophies. On the other hand it cannot be doubted that many people are sacrificing quite needlessly the attainment of a large measure of intellectual experience and satisfaction by believing that philosophic studies are inapplicable to their sphere of activities and to their purpose in life. I hope to show in the following pages, as the outcome of my experience, that the ordinary man can, with commensurate effort and pleasure, participate to an appropriate extent in these delightful pursuits of the mind, and that if he asks how he can at least begin the study, he is best able to supply the answer to the question: and I have the feeling that whosoever earnestly begins the study will desire to continue the quest."

The confession of faith, here set out, is, no doubt, somewhat discounted by the inevitable reflection that Mr. Emile Garcke is not, and never was, an ordinary man. It is, however, none the less welcome on that account. In these days, when we have a mass of citizens imbued with the belief that the persons responsible for the direction of our commerce, industry and finance are actuated by no other motive than the acquisition of material or monetary gain it is good to have a declaration like this from one whose life has been spent with notable success in such directions. The book, let us hope, will help to convert some of this misguided mass of citizens to belief in the evident truth, that no one so foolish as to regard material and monetary gain as anything more than means to an end, can be wise enough to achieve distinction and success in directing, either commerce, industry or finance.

It is to consideration of such an end that the book is really addressed. The dedication "to the author's co-workers during fifty years of industrial activity," is really an invitation to consider what that end is, at which all that work was aimed; and it is at the same time an offer of further assistance to his co-workers in duty of making sure that all their endeavours are, and continue to be, well and truly directed to that end, as far as it is ascertained.

In the very first chapter he quotes Lotze by saying, "the task of philosophy is to endeavour to impart unity and consistency to the scattered thoughts of general culture," and the author here seems mainly concerned with the fact that we all find ourselves in possession of numerous beliefs which are in conflict and incompatible with each other; and he is evidently satisfied that no person with any intellectual self-respect can refrain from an effort to reconcile his beliefs. "If you are not a thinking man, to what purpose are you a man at all?" he asks in Chapter 2. Indeed, a person who entertains beliefs that mutually conflict is one liable to be pursuing ends that are mutually incompatible; and therefore a person likely to be occupied in defeating his own purposes. *Reconciliation of belief* is, therefore the best description of the author's aim in writing as he does.

Now in the work of reconciling our beliefs we may be greatly assisted by guidance from those who have attempted it before us; but, as our author declares, although a wise man will accept the guidance of an expert, he will never follow advice blindly, because, in the final resort, it is his own beliefs a man has to reconcile not those of other peoples. Later on he quotes Dean Inge: "In all philosophy we come at last to the point where a man must trust to himself alone." We can best indicate the substance of Chapters by saying, the beliefs we have to reconcile may be grouped into three realms—physical, physiological and psychical—which the author treats as at different levels; the higher being based upon the lower, in the sense that existence of the lower is necessary for manifestation of the higher. After this follows an interlude concerned mainly with the symbols in which our thoughts are expressed. The never-ending flux of all existing things is for ever complicating our affairs and no progress can be made in the reconciliation of our beliefs (any more than progress can be made in anything else), without division of labour and co-operation; but, alas, as the author evidently discerns, we can never be quite sure that the symbols we each of us must use in communication for co-operation, have exactly the same meaning for any two individuals concerned in it. We must needs pass from what we know to what we do not yet know, that is to say we have to examine beliefs of which we are doubtful by the light of those of which we are sure. As the author has it: "The terminus for every man is his individual understanding." Those beliefs of which we are so sure that we are unable to entertain any suspicion of doubt in regard to them, we commonly calls *facts* and proceed to treat as if they were something more than mere beliefs, forgetting that, as our author puts it, "All human knowledge is relative to the view-point of the individual. In the fifth chapter Mr. Garcke returns to the division—physical, physiological and psychical—of what (we think) can best be described to the ordinary man as his beliefs. As he expresses it very concisely in his synopsis: "The lower cannot by itself produce the higher." An example of what he means is offered by a tune—any tune. There is something more in a tune than a mere concatenation of notes; just as there was more in the perception of the notes than rhythmic change in the pressure of air on the ear-drum.

We have not space to follow all his developments in the realms of belief; but when at last he can write "To say more is to recapitulate" he goes on to sum up all we have endeavoured to convey in these few words:—"The function of philosophy is to combine and interpret all experience within the limits of understanding based on imagination, knowledge and belief." Mr. Garcke's object has been to show his co-workers how to set about doing just this; and whatever else may be said about the book, all will agree it is admirable.

Proposed Tramway Subway at Liverpool.—The Bill which the Corporation of Liverpool is promoting provides for powers to borrow £31,730 for the construction of a tramway in a tunnel along a new arterial road, for which the Bills ask powers. The estimated expenditure on this road and other street improvements is £1,694,230.

Digitized by Google

RAPID AND EFFICIENT RAIL REPAIRS.

Tramway managers, especially those who have to encounter omnibus competition, are agreed upon the necessity of maintaining rails in as perfect a condition as possible, and that such a result can only be assured by the use of adequate and efficient tools. During the War, many of the tracks got into a deplorable state, owing to the impossibility of obtaining new rails and the lack of labour to make the repairs. It was then that tramway engineers realised to the full the value of electric arc welding.

In the post-war period, too, the advantage of arc welding became so obvious that managers everywhere were clamouring for a plant to carry the work into effect. In a very short time every system in Great Britain had at least one unit, which was kept hard at work filling up hammered joints and dealing with other defects. Many companies found arc welding distinctly cheaper than the older method of replacing bad portions with new rails. To-day, the larger undertakings have a number of plants systematically working in groups repairing rails. The majority of these plants are mounted on portable trucks, enabling them to be moved about as required.

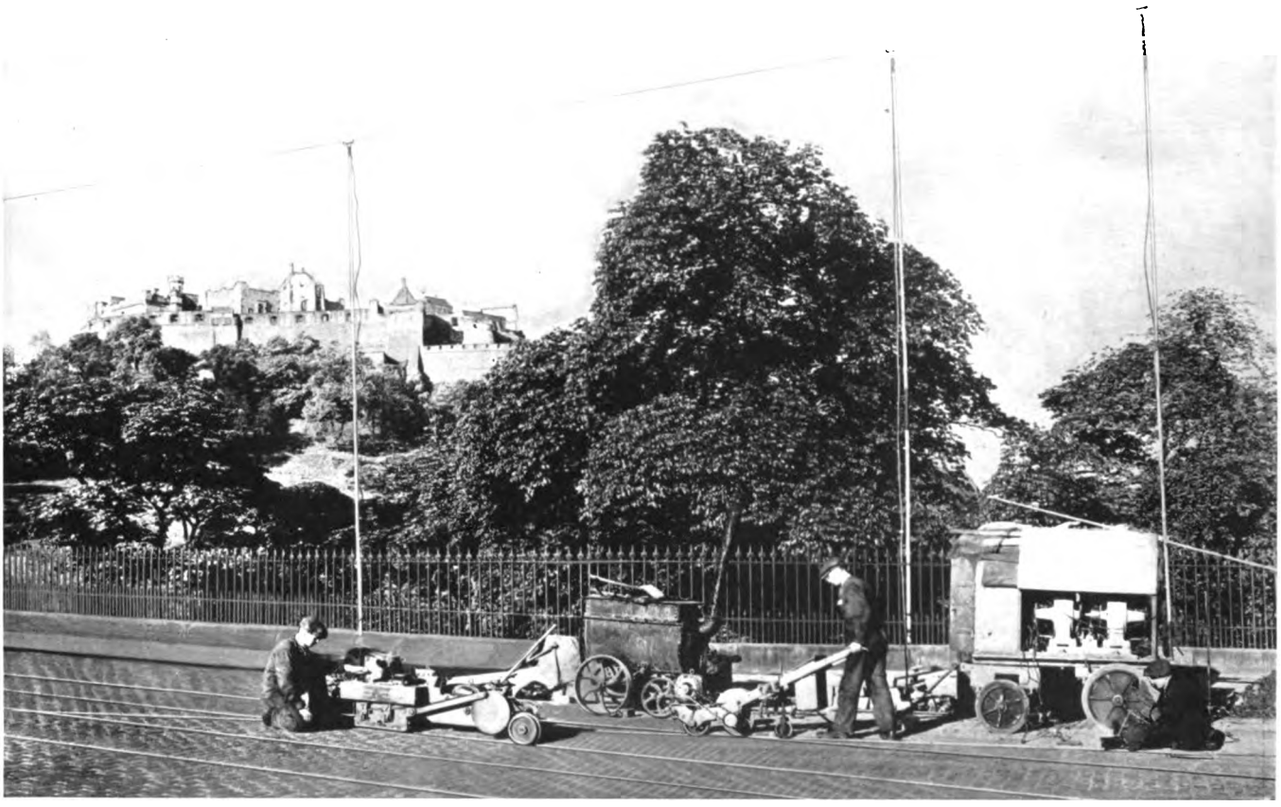
Everywhere it will be found that much more care is given to welding to-day. Where formerly the deposits were dropped upon the rails with little heed as to proper fusion with the metal itself, and whereas far too much metal was often deposited, resulting in excessive grinding and the waste of labour and current, the welder now knows how to deposit metal to the exact extent required, and in the minimum of time.

The introduction of arc welding on tramway track led to the development of the rail grinder to a remarkable degree. Formerly the grinder had only been used to smooth down rough places at points and crossings, but it now became necessary to dress the rail after welding, and the increased work called for greater power and much more robust construction. Certain tramways are using different forms of finishing machines, *i.e.*, a rotary grinding machine for removing roughness, and a reciprocating rail file for finishing off.

The illustration shows a welding plant, rail grinder and rail plane, the use of which enables rail joints to be made and finished at the approximate rate of three per hour (average wear) by a gang of three men, one man for each unit. The three machines illustrated are the products of the Equipment & Engineering Co., Ltd., and they comprise the Eli welding plant, No. 1 Celerity portable grinder and No. 4 rail plane. A new model of the well-known Eli welding plant, introduced this year, incorporates many improvements in detail of design. The No. 1 Celerity portable grinder is the popular hand-controlled grinder, which has recently been modified and improved. The motor has been replaced by a light-weight high-speed motor of special design, the two flat belts have given place to vee belts of the motor cycle type, and other improvements have been incorporated. The No. 4 rail plane is employed by nearly all the larger towns for finishing rail joints.

UNDERGROUND RAILWAYS FOR ROME.

The Superior Council of Public Works in Rome has decided upon the construction of three lines of underground railway in the city. Discussion of the matter has been in progress for several years past and one of the principal considerations that has delayed a decision has been the fear of damaging valuable archæological remains. An eminent archæologist, Professor Paribeni, a member of the technical committee specially appointed to consider the matter in 1926, has given particular study to this aspect of the problem and in the report which he has drawn up satisfactory assurances are given.



A Welding Plant with Rail Grinder and Rail Plane.

The whole underground system when completed will consist of three lines, called A, B and C, of which line A is to be constructed first. This line will start from San Paolo, will twice cross the Tiber before reaching the Piazza Venezia, and will then continue past the present main railway terminus and the Porta Pia out to the neighbourhood of Villa Savoia. Its total length will be between six and seven miles and its cost about £3,300,000. Line B, which will be three-and-a-half miles in length, will also run from San Paolo, but more directly across the centre of the city, through the Piazza Venezia and the Piazza Colonna and out along the foot of the Pincio to the Viale Delle Arti. Its cost will be about £1,720,000. Line C will start from the Viale Delle Milizie and, passing near St. Peter's, will cross the Tiber to the Piazza Colonna, whence it will go up to the main station and then out a short distance beyond the Piazza San Giovanni. It will be nearly five miles long and will cost about £2,600,000.

Construction of the whole system is expected to take about twelve years. When it is complete, the electric line now joining San Paolo with Ostia will be linked up not only with the main State Railways, but also with the railway line running out to the Castelli Romani.

Digitized by Google

NORTHERN IRELAND FARES TRIBUNAL.

BELFAST & COUNTY DOWN RAILWAY COMPANY'S APPLICATION.

The first meeting of the Fares Tribunal appointed under the Motor vehicles and Road Traffic Act (1929) Northern Ireland, was held on February 11 in the Town Hall, Holywood, under the chairmanship of Sir Lynden Macassey, K.B.E., K.C.

The Tribunal met to consider an application by the Belfast and County Down Railway Company for permission to increase the fares on the public service vehicles which it operates between Belfast and Holywood from 3d. single and 5d. return to 4d. single and 7d. return.

Sir Lynden Macassey, who was welcomed to his native town by Mr. W. F. Minnis, general manager of Belfast and County Down Railway, read a letter from the Ministry of Home Affairs which made it clear that the Tribunal had a limited jurisdiction. He pointed out that the Tribunal had nothing whatever to do with routes, services, or time-tables, and stated that it would be of assistance if those appearing at that sitting would give their views as to the considerations which ought, in their opinion, to govern the fixing of fares.

The Association of Municipal Councils of Northern Ireland and the Association of Rural District Councils were represented by Mr. L. E. Curran, who asked for an adjournment on the ground that there had not been sufficient time for the Associations to meet and pass the necessary resolutions in regard to the matter.

Mr. J. Getty, who appeared for the Holywood Urban District Council supported the application for adjournment which was, however, not granted.

Mr. W. Chamberlain, general manager of the Belfast Tramways, said the Route Omnibus Owner's Association, of which he was president, had considered the principles upon which they thought the traffic problem in Northern Ireland would be settled. The consideration of fares and stages separately would not get them anywhere. The two ought to be taken together. His Association regarded the Tribunal as representing the public of Northern Ireland, to whom they could make application from time to time for variations of fares, stages or conditions.

In the opinion of his Association the broad principle which should be adopted for the protection of the public was that fares should, as far as practical, be on such a basis as would yield gross receipts equal to a sum which would give reasonable return on the capital invested. Mr. Chamberlain hoped the Tribunal would not lose sight of the co-ordinating aspect and pointed out that on several routes in Belfast a scheme of co-ordination had been agreed between several operators and the Belfast Corporation. He expressed the wish that road passenger transport in Northern Ireland should flourish and referred to the great difficulties recently passed through, the wasteful competition and the uneconomic fares which had ruled. Mr. Chamberlain thought that if the public were to constinue to have adequate and satisfactory services the fares would have to be put on a fair basis.

The chairman explained at considerable length the general principles which, subject to the special circumstances of each particular case, would apply. The statutory jurisdiction of the Tribunal, he said, extended to nothing beyond the fixing of fares and rates for luggage and parcels. Experience had established the fact that efficient passenger road transport services could only be secured in any area if indiscriminate competition was eliminated. Elimination of competition on a basis of policy inevitably reacted upon the question of fares. It tended to diminish the cost of co-operation by doing away with unnecessary services and, by co-ordination of existing services, created the most favourable conditions for instituting the lowest economic fares. Any company or person providing transport facilities must, if they were to live, obtain an adequate return upon the money invested in the business.

The legislature had left it with the Tribunal to determine on what basis, and in accordance with what policy, fares for public vehicle services in Northern Ireland were to be fixed. It was clearly intended that the Tribunal should discharge its duty in accordance with the ordinary principles of judicial discretion, one of the first essentials of which was that they should keep its proceedings and decisions entirely detached from irrelevant political, municipal, or other considerations.

Viewed from its widest aspect, their duty was to prevent the public from being exploited by being charged unreasonably high fares and to prevent operators of public service vehicles from being crippled by being compelled to charge unduly low fares, but in fixing those fares the members of the tribunal were bound to have regard to the efficiency with which an undertaking was managed.

The Tribunal hoped that they might stimulate the rational examination in Northern Ireland of the whole question of fares from the economic standpoint, and that they might be helped by intelligent co-operation between the municipal and local authorities, the travelling public and the authorities, companies and persons providing the public vehicle services to fix fares as they could and ought to be fixed, on a fair and reasonable and economic basis that would ensure the common benefit.

In outlining the case for the Belfast and County Down Railway Company, Mr. Minnis said that prior to the Railway Company becoming interested in road transport on the route in question, it was the practice of the operators to run omnibuses without conforming to any fixed schedules. The company provided a regular fixed time-table service. They had given the working of the route a fair and reasonable trial at the present fares. The working had resulted in a considerable financial loss for the year and he submitted that the time had now arrived when the fares should be increased in order to put the service on an economically sound financial basis.

After outlining the increases which the company asked permission to make, and explaining that on certain sections within the Belfast City boundary the company would have to pay an agreed amount per passenger to the Belfast Corporation, Mr. Minnis said that during the past year every possible economy, consistent with safe working, had been studied in order to make the service a paying proposition at the existing fares, but without success. He thought it would be agreed that the company's proposals were very modest.

In cross-examination by Mr. Curran, Mr. Minnis was pressed to state the amount which it cost the railway company to take over the service, but this Mr. Minnis declined to do. It was admitted that profits from operation of the service would only be applied to development of the omnibus service up to a point and Mr. Getty, on behalf of Holywood Urban District Council, expressed the opinion that the omnibus undertaking should stand upon its own feet, as apart from the railway, and that profits from the omnibus undertaking should go to the development of the service and not to the railway.

The tribunal's decision was that the Belfast-Holywood fares should be increased to 4d. and 7d. On three other routes the single fare was raised from 2d. to 3d., and the return fixed at 6d. The new schedule will be reviewed after March 31, 1931. Workmen's tickets before 8.30 a.m. on the omnibuses have been granted by the company at 3s. weekly.

SALARIES OF L.C.C. TRAMWAY OFFICERS.

STABILISATION OF FLUCTUATING BONUSES.

The London County Council on February 4 finally ratified the agreement as to salaries and wages reached by the Joint Committee of members and staff. This agreement is the result of prolonged negotiations in regard to the low stabilities of the fluctuating cost of living bonus, together with a revision of rates which have long been recognised as inadequate.

The new consolidated scales for grades in the tramway department which are affected are given below :—

TRAMWAYS DEPARTMENT.

TRAFFIC BRANCH :—					
Assistant operation superintendent	£700	£25	£750	£30	£810
Divisional superintendent (N. & S.)	£580	£20	£600	£25	£700
Traffic statistics assistant	£515	£25	£640 as from 1/4/29		
	£620	£25	£670	£30	£760 as from 1/4/30
Publicity assistant	£515	£25	£640		
Time-tables assistant	£520	£20	£540	£25	£640
Unclassified assistant	£460	£20	£580		
Motor school superintendent	£400	£15	£460		
ELECTRICAL BRANCH :—					
Power station engineer	£820	£50	£920		
Distribution engineer	£710	£30	£920		
Assistant power station engineer	£580	£20	£600	£25	£700
Assistant distribution engineer (N. & S.)	£500	£25	£625		
Combustion engineers	£460	£20	£520		
Mains superintendent	£370	£25	£520		
Sub-station superintendent	£370	£25	£520		
Wiring superintendent	£400	£15	£460		
Charge shift engineers	£440	£20	£500		
Generating engineer	£500	£25	£575		
ROLLING STOCK BRANCH :—					
Rolling stock superintendent	£710	£30	£920		
Superintendent of central repair depot	£690	£30	£870		
Car shed superintendent (N. & S.)	£460	£20	£580		
Rolling stock inspector	£360	£20	£520 as from 1/4/29		
	£440	£20	£560 as from 1/4/30		
Superintendent of tramway central stores	£360	£20	£500 as from 1/4/30		
PERMANENT WAY BRANCH :—					
Assistant permanent way engineers (N. & S.)	£700	£30	£820		
Building superintendent	£580	£20	£600	£25	£700
CENTRAL BRANCH :—					
Printing shop superintendent	£520				
TECHNICAL ASSISTANTS :—					
Principal technical assistants	£700	£30	£820		
Senior technical assistants	£590	£20	£610	£25	£710
Technical assistants, Grade I	£460	£20	£580		
Technical assistants, Grade II	£400	£15	£460		
Technical assistants, Grade III	£310	£15	£400		
DRAUGHTSMEN :—					
Grade I	£320	£20	£400		
Grade II	£260	£15	£320		
Grade III, section (a)	£160	£12 10s.	£260		
Grade III, section (b)	No scale				
Superintendent of women checkers	£360	£15	£450		

Digitized by Google

TRAMWAY AND LIGHT RAILWAY NOTES.

BIRMINGHAM.

REFUSAL OF POWERS TO CONSTRUCT OMNIBUSES.

The Birmingham Corporation Act, which recently received Royal Assent, was amended in the House of Lords by the deletion of clauses relating to the manufacture of motor omnibuses and trolley vehicles.

BRADFORD.

"EXPRESS" TRAMCAR SERVICES—SUCCESSFUL PARCEL SERVICE.

By the rewinding of the motors, fifty of the Corporation tramcars have been given increased speed. These cars are very popular. As already reported, the English Electric Co. has received a contract to rewind the motors of fifty more cars. On twenty-one routes letters may be posted on the vehicles. The tramway parcel service provides employment for 100 men and boys. The latter, 80 in number, become omnibus conductors at 18 years of age, if passed by the medical officer.

CARDIFF.

TRAMWAY FINANCE POLICY.

Cr. Henry Johns, chairman of Cardiff Tramways Committee, has expressed the hope that the Corporation would keep its hands off the tramway and omnibus balances for a few years, in order that the undertaking might strengthen its financial position. During the past five years it had contributed £161,698 towards relief of rates, but during that same period the Committee had spent new capital amounting to £351,654. In his opinion it was wrong policy to pay large sums in relief of rates, and at the same time borrow twice that amount for capital expenditure. The sounder policy would be not to contribute towards the relief of rates, but to apply the surplus in the reduction of the loan debt. Cr. Johns has asked the manager to prepare a report for the Tramways Finance Committee on the whole question.

EDINBURGH.

CAR COMFORT AND HIGHER RECEIPTS.

In an interview with reference to the increase of receipts on the Edinburgh tramways and omnibuses, Bailie Gorman, deputy-convener of the Transport Committee, attributed the improvement to the added comfort and speed of the reconditioned tramcars. Besides the improved seating and more powerful motors, electric heating has been installed, and on these cars the receipts are notably higher. Mr. F. A. Fitzpayne, the transport manager, is carrying out these developments most efficiently, despite difficulties, Mr. Gorman added.

GLASGOW.

THE DEPUTATION TO BERLIN.

On the return from Berlin of the deputation from the Glasgow Transport Committee, Councillor Dollan, convener of the committee, said that they were received very cordially by the municipal authorities, who gave them the greatest facilities for study and investigation. They had arranged also to send plans, designs, and specially prepared information in regard to their newest buildings and machinery. The deputation were invited to visit a number of other towns, but were able only to go to Leipzig. There they found that the modern bow collector, with which experiments are being made on two Glasgow routes, had been substituted for the trolley arm and wheel. As the result of the visit, a number of valuable suggestions will be embodied in the deputation's report. The town clerk has written to Herr Reuter, chairman of the Berlin Transport Committee, thanking him and his colleagues for their reception of the deputation. An invitation has been extended to Herr Reuter and his committee to visit Glasgow as the guests of the Transport Department.

LEEDS.

CAR CONSTRUCTION AND UNEMPLOYMENT.

Following the decision of the Government not to make a grant towards the cost of 150 cars that the Tramways Committee propose to build, a revision of policy is anticipated. It was hoped that the Unemployment Grants Committee would make a substantial grant towards the cost, which was estimated at £248,000. The Committee, however, were not satisfied that the work would provide definite relief for local unemployment. The cars are estimated to cost £2,300 each, but at present only two have been arranged for. Mr. Horsfield, the general manager, has been requested to draw up a report as to the minimum requirements of the department.

LONDON.

RE-EQUIPMENT OF THE M.E.T. AND L.U.T.—NEW STANDARD OF LUXURY FOR CARS—HEAVY FOOTBALL TRAFFIC—CONDUCTORS TO TRY A TICKET MACHINE.

The Metropolitan Electric Tramways, Ltd., is to equip 60 cars with high-speed motors, cross seats, improved lighting, etc., at a cost of £37,000. Roof covers are to be fitted to 79 double-deck cars at a cost of £25,000 Seventy-two cars are to be reconditioned and provided with transverse seats and improved illumination at a cost of £42,000. Additional feeders to connect track with new substations are to be provided at a cost of £4,330. The Company's lease of the Middlesex County Council tramways was on March 6 renewed for 42 years from 1930 at a rent of £72,000 a year. Steps have been taken for the construction of 46 cars for the London United Company. These are to be of novel design and will establish a new standard of luxury for public service vehicles. As the cars will be equipped with more powerful and efficient electrical gear, Lord Ashfield considers that they will secure a substantial increase in traffic on the Uxbridge Road route. It is proposed to experiment with trolley omnibuses in Kingston, Surbiton and Twickenham. On February 15 the London County Council Tramways had services from various points inside the county to the West Ham United ground at the rate of 78 cars an hour for the cup tie with Millwall. The Council has decided to arrange, as an experiment, for the use of a self-printing machine by conductors, and has accepted the offer of the Allegemeine Electricitats Gesellschaft for a machine at a cost not exceeding £50.

MANCHESTER.

TEST OF A SAFETY DEVICE—AN APPEAL TO MOTORISTS—TRANSPORT DEPARTMENT'S FINANCES.

The Tramways Department is testing an automatic signalling device on cars by Mr. F. Birtwistle, of Bolton. It is stated to have had the effect of speeding up a service. The General Purposes Committee of the Corporation, in view of the decision to withdraw from the Parliamentary Bill the clause which would make it compulsory for motorists to bring their cars to a stop when tramcars are setting down or picking up passengers, has appealed to the motoring organisations to show special regard for the comfort and safety of tramway passengers. Mr. R. Stuart Pilcher, the general manager, has reported that it was estimated a sum of £91,500 would be available next year from tramway receipts. For depreciation on omnibuses £12,200 was set aside, and the balance from the omnibuses was estimated at £30,800, making a total balance of £122,300. An expenditure of £119,000 on renewals would be required next year, and for the first time in six years they would be paying in more than they took out of the fund. The renewals account has been going down since 1925, when it stood at £620,000. It was now £224,000. While further economies were likely to be effected, a sum of £100,000 would be required for omnibus development.

NEWCASTLE-ON-TYNE.

SUPERANNUATION FOR EMPLOYEES—NO WAGE INCREASES.

The city tramway employees have decided on a ballot vote to agree to membership of the Corporation's superannuation scheme. The contribution from the workers is to be a 5 per cent. deduction from wages each week, the Corporation contributing a like amount annually. The retiring age is to be 65, with superannuation based on the last five years' wages. Provision will be made for workers who, through ill-health, have to retire with less than ten years' contributing service, or who have to retire through ill-health before 65, or for dependants in case of death before retirement. The Newcastle Transport Committee recently received a deputation from the Transport and General Workers' Union, who applied for an increase in the wages of the tramway employees. Alderman R. Mayne, the chairman of the Committee, informed the deputation that the request could not be granted during the present financial year, whatever the future might produce.

NORWICH.

THE COMPANY'S POLICY.

Mr. R. F. E. R. d'Erlanger, chairman of the General Consolidated Investment Trust, at the general meeting said that the Norwich Electric Tramways, in which they had a substantial interest, had continued to develop its tramway services in conjunction with motor omnibuses. Mr. Charles Pakeman, who represents the company on the Norwich Tramway Board, said that there appeared to be some prejudice against tramways in the mistaken belief that they were no longer fulfilling their function with such good effect as the motor omnibus. That was too sweeping an assertion. Since 1925 the company had continuously developed its omnibus routes. The directors believed that the tramway side was the foundation and mainstay of the whole business, and that the omnibus side represented power to expand in any direction called for by the traffic conditions. The company had pursued a conservative dividend policy, but, nevertheless, the dividend had progressed with the increasing profits. Since 1922, when 2 per cent. was paid, the company had gradually raised the rate of distribution until last year it amounted to 5 per cent. During the past ten years they had placed substantial sums to reserve account to provide for renewal of tracks, obsolescence of plant and equipment, and these sums in effect constituted the equivalent of a depreciation

Digitized by Google

fund. Out of profits they had created the fleet of omnibuses, and they would be in a position to provide additional omnibuses as required to serve new suburbs and extensions of their territory.

SOUTHPORT.

A Report to be Presented on Trolley Omnibuses.

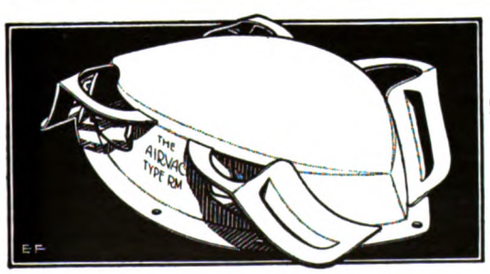
Southport Tramways Committee has asked the general manager to present a full report on the tramways system, together with proposals for the use of trolley omnibuses. Another report will be obtained on the financial effect on the maintenance of roads in the borough owing to the running of omnibuses. The electrical engineer and borough treasurer have also been requested to present a report to the Tramways Committee on the financial effect on the electricity undertaking of the discontinuance of the tramways.

READING MUNICIPAL TRANSPORT GUIDE.

In a quarterly publication comprising 72 pages and a map, the Tramways and Motor Department of Reading Corporation issue a guide to municipal transport which has proved of great service to the townspeople and visitors. As no charge is made for it, this handy pocket guide has a large circulation in business establishments and private houses, with consequent advantage to its readers and to the receipts of the tramways and omnibuses. The map is particularly useful. It plainly shows the tramways and the omnibus routes, the latter traversing a more extensive area than the tramways. Besides extending the tramway services, the omnibuses reach out to new districts in all directions, and where necessary they also connect the tramway routes with each other. Direct access is given by tramcar and omnibus to the railway stations, and while the tramways serve only one park, the omnibuses have two parks and four recreation grounds on their routes. Full particulars are given of the tramway and omnibus services and of the parcels express. As this service is operated in conjunction with that of the Thames Valley Traction Co., a very wide area is served outside of the town. Another good feature is the omnibus services to and from the railway stations, together with a list of trains to and from Paddington Station. It would be to their advantage if more transport undertakings emulated the enterprise which Mr. J. M. Calder, general manager and engineer, has shown in publishing this admirable little guide.

PITTSBURG'S NEW STREET CAR.

The latest car constructed for the Pittsburg Street Railways is described as a most important single advance in a new sort of control—" variable-automatic "—with a very quick acceleration secured by four 50-H.P. light-weight motors. The car's maximum performance is made possible by the new control. Acceleration is automatic, and hence very smooth, but the rate of acceleration is under the motorman's control. The car has accelerated and braked at five miles per hour per second without discomfort to passengers. The appearance of the car is novel. The motorman drives through the agency of foot pedals, one pedal controlling the power and the other the brakes. The car is constructed almost entirely of aluminium, including the trucks, and although 45 feet in length, and seating 42 passengers, it weighs 25,242 lb.



From an eight carriage train in India, Airvacs remove 28,000 cubic feet of air ten times in every hour, or once every six minutes—proof positive of superb Airvac efficiency under difficult climatic conditions.

AIRVAC VENTILATORS
Honeypot Works, DARLINGTON

NEW MANAGER OF BURNLEY TRANSPORT.

Appointment of Mr. C. H. Stafford.

As already recorded in these columns, Mr. C. H. Stafford, deputy manager and assistant engineer to the Reading Corporation Tramways and Omnibuses, has been appointed general manager of the Burnley Corporation Tramways and Transport department. There were thirty-three applicants, and Mr. Stafford was appointed after a deputation from the Tramways Committee had visited the undertakings where three selected candidates were engaged. Mr. Stafford, who is nearly forty years of age, takes the place of Mr. Henry Mozley, who is retiring on pension after many years' able service.

Photo] [*Lafayette, Manchester.*

Mr. C. H. Stafford.

Mr. Stafford was born at Birmingham, in 1890, and was educated at the Birmingham Municipal Technical School. He later became an engineering pupil with Belliss & Morcom, Ltd. In 1912 he relinquished the position he subsequently held with the firm, on being appointed power station superintendent with the Reading Corporation. During the war Mr. Stafford served overseas from 1914—1919, first in the Berkshire Yeomanry and afterwards holding a commission in the Royal Flying Corps from 1916 until the end of the war. On his return to Reading he was appointed assistant engineer to the Corporation Tramways and Omnibuses, and in 1923 was promoted to the position of deputy manager and chief assistant engineer.

NEW LONDON TRAMWAY POSITION.

The London County Council is about to invite applications for a new position of assistant rolling stock engineer in the Tramways Department, at a salary of £1,000–£50–£1,200 per annum. In recommending the creation of the position the Highways Committee state the improvements which are taking place in connection with rolling stock make it essential that the Council should be kept in the closest touch with such developments as are applicable to tramcars. There is also need for ensuring that those parts of tramcar equipment which are peculiar to the conduit system are of such order that the possibility of breakdown is reduced to the minimum. The position should be created primarily for the purpose of research, but with general authority to supervise the work of the rolling stock branch under the rolling stock engineer.

Relief of Unemployment.—Mr. J. H. Thomas stated in the House of Commons on March 11 that the amounts sanctioned for schemes to relieve unemployment were :—Railways, £8,000,000 ; docks and harbours, £6,500,000 ; unclassified roads, £2,500,000 ; trunk roads, £10,000,000 ; road improvements, £14,000,000.

Digitized by Google

RETIREMENT OF MR. A. DAGGETT.

An interesting ceremony recently took place in the Tramway Offices, Swinegate, Leeds, when Mr. A. Daggett, the traffic superintendent, closed his forty-five years' tramway and omnibus service, and was presented with a handsome wireless set and a standard reading lamp subscribed for by the officials of the Corporation Tramways and Omnibuses Department.

The presentation was made by Mr. R. L. Horsfield, general manager, who in the course of his remarks said that Mr. Daggett was the oldest servant in the department, so far as length of service was concerned. He referred in terms of appreciation to the assistance which Mr. Daggett, as traffic superintendent, had rendered to him since he took up his duties as general manager, and spoke of the yeoman service which the retiring officer had rendered to the department during his long period of service.

Other officials also expressed their regret on the termination of Mr. Daggett's period of service, and their best wishes for the future happiness and prosperity of Mr. and Mrs. Daggett. They spoke in terms of praise and appreciation of his virtues as a colleague and associate in the work of the department.

Ex-driver Fearnley, who had been invited to attend, gave reminiscences of his experiences with the traffic superintendent in the early days of steam and electric traction. Amongst others who spoke were : Mr. J. W. Blakeborough, chief accountant ; Mr. A. A. Allan, rolling stock superintendent ; Mr. H. P. Foster, permanent way engineer ; Mr. F. M. Wetherell ; Mr. J. S. Broadbent ; and the new traffic superintendent, Mr. H. H. Lancaster, together with other officials who had been associated with Mr. Daggett for many years.

A COVENTRY TRANSPORT APPOINTMENT.

Mr. A. A. Jackson, whose photograph is published in this column, has been appointed deputy-general manager and engineer to the Coventry Corporation Transport undertaking. Mr. Jackson has lately held the position of chief assistant to Mr. W. G. Marks, the general manager of the Nottingham Corporation Tramways. He also rendered honorary service in movements for the social welfare of the employees of the department.

Mr. A. A. Jackson, Deputy-Manager and Engineer, Coventry.

PERSONAL.

Mr. S. E. Burgess, borough engineer of Middlesbrough Corporation, has been granted an increase in salary to £1,050.

Mr. C. Partington, rolling stock superintendent, Huddersfield Corporation Tramways has been granted an increase in salary to £400 per annum.

Mr. H. H. Lincoln, general manager, Wallasey Corporation tramways and omnibuses, has been granted an increase of £100 per annum in salary.

Mr. A. Dickson, now garage superintendent of Oldham Corporation Tramways, has been appointed rolling stock superintendent at a salary of £400 per annum.

Mr. H. Taylor, foreman of the trolley omnibus section of Bradford Corporation Tramways, has been appointed superintendent of rolling stock and trolley vehicles at Darlington.

Mr. F. R. Kay has been appointed home sales manager to the Vulcan Motor and Engineering Co., Ltd., of Southport. For many years Mr. Kay was sales manager to the Rover Company.

Mr. A. J. Spiller, who has been appointed a director of Simplex Conduits, Ltd., has been connected with the firm for thirty-two years. During the past ten years he held the position of secretary.

Mr. F. H. Corson, city electrical engineer at Gloucester, has been granted an increase in salary of £100, the amount which he received whilst also holding the appointment of general manager of the transport undertaking.

Mr. R. M. Longman, who for nine years has been technical superintendent with the Yorkshire Electric Power Co., has been appointed chief assistant to Mr. S. E. Fedden, engineer of the East Midland area of the Central Electricity Board.

Mr. T. P. Sykes, general manager, Rotherham Corporation transport undertaking, has been recommended by the Tramways Committee for an increase of £100 to his salary of £900. Mr. W. Cornick, traffic superintendent, is recommended for an increase from £350 to £400.

Mr. A. G. Robertson has been appointed general sales manager of the Goodyear Tyre and Rubber Co. (Great Britain), Ltd. The vacancy thus created in the position of sales manager for Scotland has been filled by the promotion of Mr. S. Stanger, who has represented the company in Aberdeen. His headquarters now are at 61, Bath Street, Glasgow.

Mr. C. F. Bolton has been appointed by the Central Electricity Board to be maintenance engineer in the South-Eastern area. For seventeen years Mr. Bolton has been with the British Insulated Cables, Ltd., and during the past two years he supervised the erection of the first 132-K.V. primary transmission lines in the Central Scotland area for the Board.

Mr. T. A. G. Margary has been appointed borough electrical engineer and manager at Wolverhampton. He has for some years been distribution superintendent. The position became vacant in August last, and was advertised at a salary of £850. Subsequently the Electricity Committee was authorised to offer £1,000, rising by annual increments of £50 to £1,200.

Westinghouse Brake & Saxby Signal Company, Ltd.—At a meeting of the board, the following appointments were made : Mr. H. G. Brown, managing director, to be deputy-chairman ; Capt. B. H, Peters, general manager, to be managing director ; Mr. W. H. Powell, general business manager, to be general manager ; Mr. J. Griffiths-Hall to be secretary in place of the late Mr. R. Pain.

Mr. J. Christie, borough electrical engineer and manager of the Brighton electrical supply department, has tendered his resignation. He has been in the service of Brighton Corporation for thirty years. It has been suggested by the General Purposes Committee that Mr. Christie should continue to act as consulting engineer at a salary of £1,000 until such time as a superannuation scheme is introduced.

Colonel J. S. Matthew, who is known for his work in connection with improvements in wheels, four-wheel brakes, and single sleeve-valve engines, has been admitted to the freedom of the City of London, following his admission to the freedom and livery of the Worshipful Company of Wheelwrights. In addition to his duties with the Dunlop Company, Colonel Matthew renders municipal service to Sutton Coldfield.

Mr. E. C. Cox, chief operating superintendent of the Southern Railway, has been appointed traffic manager of the operating and commercial departments, which have been merged. An important section of the new scheme will be road transport, including railhead distribution. As the company has acquired substantial financial interests in the most important road transport companies in its area, there are to be developments in the facilities offered by the Southern Railway for the conveyance by road of both passengers and goods.

Mr. D. Maxwell Buist has been appointed engineer for the North-Eastern England Electricity Supply Scheme under the Central Electricity Board. The salary is understood to be £2,000 a year. During the past two and a half years Mr Buist has been chief electrical engineer of Synthetic Ammonia and Nitrates, Ltd., at Billingham-on-Tees, where he was responsible for the erection of one of the largest power stations in the country. Earlier appointments include those of chief assistant to the city electrical engineers of Hull and Edinburgh.

Mr. C. K. Everitt has been appointed chairman of Edgar Allen & Co., Ltd., Imperial Steel Works, Sheffield. He has been a director

Digitized by Google

since 1908 and has managed the steel department. According to the "Edgar Allen News," it was the courage and enterprise of Mr. Everitt that enabled the company to take the pioneer step in producing steel commercially by electric arc furnace. Recently Mr. Everitt visited the United States (in which country the company has two offices) where his knowledge was drawn upon at the Steel Treaters' Convention.

Mr. H. E. Blakiston has been appointed borough electrical engineer at West Hartlepool, in succession to Mr. J. H. Parker, at a salary of £1,125 per annum. He has also been appointed general manager of the Corporation Transport Department at an additional salary of £150 per annum. From 1928, Mr. Blakiston was deputy borough electrical engineer at Bermondsey. Between 1919 and 1928 he was a sub-station superintendent of the London County Council Tramways and for several years was with the Cleveland and Durham Electric Power Co. and the South Wales Electric Power Co.

Mr. J. G. Cockburn, lately garage superintendent of Sheffield Corporation Tramways and Motors, who recently took up a new position as rolling stock superintendent of Plymouth Corporation Tramways and Motors Department, was presented on February 27 with a gold watch and chain by the combined administrative staff. The good wishes of the donors were expressed by Mr. H. Watson, assistant manager, acting for the general manager, Mr. A. R. Fearnley. Congratulations from other branches of the service were tendered by Messrs. S. W. A. Sturman, R. R. Telford, and H. Wilson, representing works, overhead lines and staff, respectively. Mr. Cockburn has over 25 years' service with Sheffield Tramways.

Mr. Norman A. Hardie, general manager (sales) of the Associated Equipment Company, is about to make an extensive tour through South America. He will visit a number of "ACLO" depots (the registered name under which A.E.C. vehicles are marketed in South America and Germany) and investigate new channels of distribution in all South American States in connection with the recently developed "Regent" and "Regal" omnibuses and the new range of A.E.C. goods vehicles. The company feel that the new range of "ACLO" vehicles, which have undergone extensive tests at home and abroad, could be successfully offered in competition with the American types. F.W.D. vehicles fitted with A.E.C. 95 H.P. six-cylinder power units should prove an extremely useful type suitable for service under difficult conditions existing outside the principal cities.

Mr. P. Baron, who was in January last appointed as a demonstrator salesman to Alloy Welding Processes, Ltd., joined the Lytham St. Annes Tramways in 1912, where he was assistant to Mr. H. W. Laing, manager and engineer, and gained permanent way experience under Mr. S. Butler, now permanent way engineer of Bury Corporation Tramways. From 1916 to 1919 Mr. Baron served in the R.N.A.S., and he obtained his first experience of welding with Alloy Welding Processes, Ltd. Appointed permanent way engineer to the Lytham St. Annes Tramways in 1922, he made great use of welding in its application to permanent way and fitting shop practice Mr. Baron has visited practically every large tramway centre in England at various times when any special welding work has been in progress. He is now calling on tramway engineers, and hopes to assist them with their welding problems.

Tributes to a ex-Chairman.—Rotherham Tramways Employees' Club has entertained at dinner ex-Alderman G. Gummer, who was chairman of the Tramways Committee for ten years. Mr. H. B. Sharpe, traffic superintendent, presided. The Mayor, Ald. E. Cruikshanks, referred to the work done by Mr. Gummer, who, he said, initiated many street improvements. Ald. G. E. Caine, Chairman of the Tramways Committee, proposed the toast of the evening and mentioned that the clearing up of the centre of the town and the widening of the streets was due almost entirely to the initiative and energy of Mr. Gummer. Alluding to the Transport Department, he remarked that the present manager, Mr. T. P. Sykes, had practically rebuilt the department. In reply, Mr. Gummer said he counted it a great honour that the men with whom he had worked for ten years should have invited him to dinner. He recalled the fact that a presentation was made to him when he resigned his position as chairman of the Tramways Committee.

The Late Lieut.-Col. Montagu Gradock, a director of the Metropolitan-Vickers Electrical Co., Ltd., and of the Westinghouse Brake and Saxby Signal Co., Ltd., left estate valued at £63,335 (£24,623 net personalty).

Mr. W. G. Snell, who was for many years, until February, 1928, general manager of the Perth Corporation Tramways, died in Dundee Royal Hospital, on March 6. Mr. Snell was appointed general manager on the electrification of the tramways, and gave every satisfaction in the discharge of his duties, which during later years became increasingly onerous. He was also an office-bearer in St. Ninian's Cathedral. Early in 1927 Mr. Snell had a nervous breakdown and for several months was unable to attend to business. Ultimately he resigned and went to live at Dundee. Upon recovering his health he was appointed an inspector of the Dundee Corporation Tramways and settled down happily to the new conditions. Two days before his death he was found unconscious, and was taken to hospital. His decease is widely regretted. Mr. Snell, who was 45 years of age, leaves a widow and son.

We regret to record the death of **Mr. Peter Fisher,** formerly general manager of Dundee Corporation Tramways. Mr. Fisher, was 74 years of age. He went to Dundee from the Vale of Clyde Tramways, where he was permanent way and assistant traffic superintendent, in 1887. In 1890 he was promoted to be manager and secretary of the Dundee and District Tramways Company, and when the Corporation took over the tramways in 1898 Mr. Fisher was appointed as general manager, and retained the position until he retired in 1920. He was president of the Municipal Tramways and Transport Association in 1915-16. Mr. Fisher's work was characterised by a lively intelligence and great energy. He readily adapted himself to the changed conditions in the period of transition from horse to electric traction, and during his management the Dundee tramways were electrified.

CONTRACTS AND ORDERS.

Glasgow Tramways Committee has ordered 2,000 Cosmos traction lamps from Metro-Vick Supplies.

Sheffield Corporation has ordered 500 steel tramcar tyres from Brown Bayleys Steel Works, Ltd.

Nesta, Ltd., are supplying 100 sets of upholstered tramcar seats to Manchester Corporation Tramways.

Edgar Allen & Co., Ltd., have a contract from Liverpool Tramways Committee for special track work, at £1,330.

Portsmouth Corporation has accepted the tender of the English Electric Co., Ltd., at £41,760 for switchgear.

Glasgow Tramways Committee has ordered 2,000 Cosmos traction lamps from Metropolitan-Vickers Supplies, Ltd.

Edgar Allen & Co., Ltd., are supplying special trackwork for the new transport depot of the Dundee Corporation.

Forest City Electric Co., Ltd., Stretford, has an order from Manchester Transport Committee for tramway rail bonds.

W. Griffiths & Co., Ltd., are to reconstruct the tramway track for the Barking Urban District Council at £27,515 7s. 8d.

Rochdale Tramways Committee has ordered a No. 2 improved celerity rail grinder from the Equipment and Engineering Co., Ltd.

The L.M.S. Railway Company has placed a contract for electric lamps for one year with Siemens Electric Lamps and Supplies, Ltd.

Swansea Electricity Committee has awarded a contract for the supply of switchgear to the Metropolitan-Vickers Electrical Co., Ltd.

Portsmouth Electricity Committee has recommended acceptance of the English Electric Company's tender, at £41,760, for the supply of switchgear.

Johnson & Phillips, Ltd., have an order from the County of London Electric Supply Co., Ltd., for overhead power lines for development in Kent.

Dorman, Long & Co., Ltd., of Middlesbrough, are the successful tenderers for the supply of tramway rails to Glasgow Corporation Tramways at £25,250.

The Central Electricity Board has placed a contract with the General Electric Company for six 30,000 k.v.a. 3-phase transformers for the Mid-East England electricity scheme.

The British Thomson-Houston Co., Ltd., has received from Liverpool Corporation a contract for the supply of armour-clad switchgear and lighting and distribution boards at £11,000.

Liverpool Corporation has accepted the tender of the Metropolitan-Vickers Electrical Co., Ltd., for the supply of a 50,000-kw. maximum continuous rating turbo-alternator, with accessories, at £187,870.

Grimsby Electricity Committee has recommended acceptance of the tender of the Metropolitan-Vickers Electrical Co., Ltd., at £31,405, for a 10,000-kw. turbo-alternator and condensing plant.

Glasgow Transport Committee has accepted the tenders of the English Electric Company, Ltd., for the supply of a transformer, and of Edgar Allen and Company, Ltd., and the Titan Trackwork Company, Ltd., for special trackwork.

The Taylor Stoker Co., Ltd., Bush House, London, has an order for the complete fuel-burning equipment for the first section of the Battersea power station. Eight equipments of similar design are being supplied to the Berlin Electric Company.

The Westinghouse Brake and Saxby Signal Company have received an order from Birmingham Carriage and Wagon Company for 400 Prestall vacuum brake sets for wagons which they are building for the Buenos Aires and Pacific Railway.

Glasgow Corporation has awarded to the Metropolitan-Vickers Electrical Co., Ltd., a contract for the supply of a turbo-alternator and spares for Pinkston power station, at £41,807, subject to deduction in respect of spares for condensing plant.

Digitized by Google

Bradford Tramways Committee has placed the following contracts: Yorkshire Repetition Casting Co., Ltd., 60 tons of hand-brake shoes and 60 tons of brake blocks; English Electric Co., Ltd., re-winding 100 tramcar motors at £96 15s. 6d. per motor.

Tenders for Machine Tools.—Manchester Tramways Committee has recommended the acceptance of the tender of Sagar & Co., Ltd., of Halifax, for a motor-driven mortising machine, and of T. Robinson & Sons, Ltd., of Rochdale, for a motor-driven moulding machine.

The Brush Electrical Co., Ltd., has received an order from Stone & Webster, Incorporated, consulting engineers, Boston, U.S.A., for a 2,000-kw. Brush-Ljungstrom turbo-generator set for installation at the Jamaica Public Service Department, Kingston, Jamaica. A 1,000-kw. set was installed in 1925.

The British Thomson-Houston Company has an order from the High Commissioner for India for four water turbine driven alternator sets to be used in the Shanan power station in connection with the Uhl River hydro-electric scheme, to which Messrs. Preece, Cardew & Rider are the consulting engineers.

The Metropolitan-Vickers Electrical Company has a contract for the complete machinery and plant for the new State electric power station at Montevideo. Exclusive of buildings, the contract amounts to nearly three quarters of a million sterling, and includes two 25,000 kw. 3,000 R.P.M. turbo generator sets.

Glasgow Corporation has placed a contract with the English Electric Co., Ltd., for the new switchboard for the Pinkston power station at an estimated cost of over £32,000. Work has been commenced on the new boiler contract, which was entrusted to John Thompson Water Tube Boilers, Ltd., of Wolverhampton.

Sheffield Tramways Committee has accepted the following tenders: Eighteen pairs of tramcar traction motors at £355 per pair, Metropolitan-Vickers Electrical Co., Ltd.; eighteen car sets of control and braking system at £207 10s. per set, Maley and Taunton, Ltd.; eighteen tramcar trucks at £208 each, Craven's Railway Carriage and Wagon Co., Ltd.

The Central Electricity Board has placed contracts in connection with the Mid-East England electricity scheme to the approximate value of £230,000, as follow: Johnson & Phillips, Ltd., 33 kilovolt transmission lines, and two with the English Electric Co., Ltd., for 132 kilovolt transformers. The contract for transformers is additional to those recently announced.

Walthamstow Tramways Committee have accepted tenders for the reconstruction of the track in Woodford New Road, as follows: Rails and fishplates, Cargo Fleet Iron Company; points and crossings, Edgar Allen & Co., Ltd.; welded joints, Rail Welding Co., Ltd.; tie-bars, clips and bolts, Bayliss, Jones & Bayliss, Ltd.; copper joints, T. Bolton & Sons; car shed lay-out, Titan Trackwork Co., Ltd.

British Insulated Cables, Ltd., of Prescot, have a number of important contracts. Among these is an order of 66,000-volt cables for one of the large power companies in London, the value being about £250,000. Another is for a G.P.O. trunk telephone cable from Manchester to Chester, a distance of 42 miles. Large orders for telephone cables for shipment abroad include 96,000 yards of underground cable, a short length of submarine cable for Shanghai, and 2,000 yards of underground cable for Australia. The Southern Railway has ordered 40,000 rail bonds.

L.U.T. TROLLEY OMNIBUSES EXPERIMENT.

An announcement by the London United Tramways Co. states that, while under the terms of their Parliamentary Bill they are seeking powers to abandon any part of their system for the purpose of operating trolley omnibuses, they do not intend, in the event of the Bill being passed, to do more in the first instance than carry out experiments on certain parts of their system. It may be necessary to experiment in several areas before a satisfactory conclusion can be reached, and it is for this reason that they are seeking the powers over the whole system. The first experiment will probably be in the Kingston area.

THE ELECTRICAL INDUSTRY.

Mr. V. Watlington, M.B.E., chairman of the B.E.A.M.A., speaking at the annual dinner of the Association of Supervising Electrical Engineers at the Hotel Cecil, on February 22, urged the need for greater co-operation of all sections of the electrical industry. The industry was exporting 25 per cent. of its total production, and anything that would tend to increase exports still further was valuable to the country. Standardisation helped, and supervising engineers should make it a rule always to specify standard machinery and equipment. While the electrical industry was the one bright spot in the industrial situation, it was working at only 60 per cent. of its productive capacity. If they could get the remaining 40 per cent. working, it would help tremendously in lowering prices.

COMMERCIAL AND TECHNICAL PHOTOGRAPHERS

Specialists to the Motor, Tramway & Railway Industries.

EXPERT OPERATORS ALWAYS AVAILABLE.
CONTRACTS UNDERTAKEN IN ALL PARTS OF THE COUNTRY.
Photographic printing and enlarging. Post Cards, Calendars, etc.
Prices on application.
AIR PHOTOS OF FACTORIES, POWER PLANTS, TRAFFIC, etc.
PICTORIAL AIR VIEWS OF TOWNS IN STOCK FOR GUIDE BOOKS.

AEROFILMS LTD. *Tel:* COLINDALE 6183, 6184.
COLINDALE AVENUE, HENDON, LONDON, N.W.9

THE
Manchester Armature Repair Co. Ltd.
ELECTRICAL ENGINEERS
FORD LANE, PENDLETON, MANCHESTER

Contractors to Leading Tramway Authorities for
ARMATURE COILS
FIELD COILS
COMMUTATORS
For All Types of Tramway Motors

Telephone—Pendleton 151 *Telegrams*—"Rewinding Manchester"

ESTABLISHED 1856
Contractors for more than Half a Century to the principal British, Indian, Colonial and Government Railways &c. &c.
TEARNE & SONS LTD.
BIRMINGHAM
TRANSFERS
For Tramcars, Railway Carriages, &c.
ARMS - MONOGRAMS - LETTERING
Every Description of Inside and Outside Ornamentation, Notices, etc.
Telephone—Northern 1637 *Telegrams*—"Tearne, Birmingham"

Automatic and Curb Point Controllers
Tramway & Traffic Signals
Porcelain Insulators and Fittings

THE
FOREST CITY ELECTRIC CO., LTD.,
4, Longford Road, Stretford,
MANCHESTER.

Digitized by Google

Leather Upholstery

Unsurpassed for

Public Service Vehicles

1 Economy & Service.

Low cost and capacity to stand hard wear.

2 Clean & Sanitary.

There is nothing to equal it.

3 Appearance & Comfort.

Refined and cheerful.

JOHN T. HART & SONS,

Grange Road,

BERMONDSEY,

LONDON, S.E.

There is no better leather obtainable.

Write for patterns and quotations and all particulars.

TELEPHONE CONTROL OF TRAFFIC.

THE INVISIBLE FINGER IN OPERATING TRAMWAYS.

The length of traffic delays—unavoidable in an area of London's size and traffic density—has been much reduced as a result of the London County Council Tramways telephone system throughout London.

As already described in THE TRAMWAY AND RAILWAY WORLD, the telephone control system keeps a central office in immediate touch with routes measuring 166 miles, and facilitates quick effect being given to decisions in emergency.

At half-mile intervals are telephone boxes numbering in all about 400. Each communicates with a central office, which is known as "Control." This is open night and day to receive information, issue instructions throughout the routes and keep in touch with the management.

If a tramcar service is obstructed for any reason, by means of "Control" an official summonses the breakdown gang. These men arrive in a few minutes and the obstruction is cleared by the most up-to-date machine of its kind in England. If necessary a diversion of cars to an adjacent route is arranged, and other modifications of service are made to meet the emergency.

A gap in a service can be filled as the result of a call to "Control," which issues instructions to secure an even headway. If the emergency is serious "Control" telephones for a senior officer.

"Control" is also the unseen clock of the tramways. At eight o'clock every morning "Control" hears the chimes of Big Ben over the wires, and from this signal the watches of inspectors and regulators are synchronized.

Every happening of importance is recorded by "Control" in a log-book that is kept up-to-date to the minute. If a car fitment is damaged a wayside message to "Control" will result in a replacement being made at a convenient point *en route*.

A valuable function of these telephone boxes is their use in case of a street accident when no public or private telephone is available. Then "Control" can take a message and pass it to hospital, public ambulance or police—an every-day occurrence.

THE BRAKING OF TROLLEY OMNIBUSES.

AN AUTOMATIC ELECTRIC BRAKE AT CHESTERFIELD.

Thanks to Mr. Richard Hoggard, the general manager of the Chesterfield Corporation Transport Department, there has been tried out on a trolley omnibus of the Corporation an automatic electric brake which incorporates safety braking features not hitherto fully experimented with in this country.

One feature of the brake is that it affords increased safety of operation on gradients. The smooth retardation of the omnibus is rendered independent of the personal element, thus ensuring the most effective rate of retardation. Further, this brake is stated to involve no risk of the vehicle skidding through violent application of brakes. The driver, freed from that risk, is able to concentrate on the steering of the vehicle.

The scheme has been developed and supplied by the British Thomson-Houston Co., Ltd., Rugby, and it is understood that the principle lends itself to modification to meet the specifications requirements of various route conditions. The brake functions on the electro-dynamic principle, is independent of contact between the trolley poles and the overhead conductor, adds no additional weight to the motor or bearings, and is semi-automatic in application.

With rheostatic braking as customarily used on tramcars, each brake notch has to be given by hand. With this semi-automatic scheme of braking, once the braking action has been started, subsequent notches may be given automatically, and the rate of application of the brakes is dependent on the current flowing in the braking circuit, thus avoiding excessive current and voltage peaks, and securing uniform application of retarding effort.

For ordinary service stops from speed, the driver moves the handle of a controller to the brake notches. This action changes the connections of the motor to those necessary for dynamic braking, and completes the circuit necessary for the retardation of the vehicle. In the arrangement now in service, the semi-automatic feature only comes into operation on the second notch, thus allowing of braking independently of the semi-automatic feature, if desired. Mr. Hoggard emphasises that with the new brake, not only are the racking stresses on chassis eliminated, but obvious economies result from the increased life of the brake linings.

LEEDS TRANSPORT CO-ORDINATION.—Leeds Tramways Committee has asked the L.N.E.R. and the L.M.S.R. to come to an early agreement with the Corporation for the co-ordination of road passenger transport services.

Digitized by Google

TRAFFIC RETURNS.

Tramway and Omnibus Undertakings in the United Kingdom.

NAME OF COMPANY OR CORPORATION	1929. WEEKS ENDING					1930. WEEKS ENDING					AGGREGATE.		
	Feb. 9	Feb. 16	Feb. 23	Mar. 2	...	Feb. 8	Feb. 15	Feb. 22	Mar. 1	...	Wks.	1930	Increase or Decrease.
	£	£	£	£	£	£	£	£	£	£		£	£
Aberdeen Corporation	4,387	4,036	3,691	3,838	...	4,652	4,316	4,173	4,143	...	39½	193,570	+ 16,057
Ashton-under-Lyne Corporation ...	1,484	1,379	1,437	1,498	...	1,547	1,518	1,512	1,536	...	48	80,251	+ 4,102
Ayr Corporation	408	382	390	380	...	405	396	389	400	...	41	24,465	+ 1,447
Barrow Corporation	803	755	...	...	...	821	825	...	...	...	46	44,764	+ 4,185
Belfast City	11,368	11,166	11,233	11 398	...	12,218	11,926	11,672	11,855	...	47½	585,207	- 117,969
Birkenhead Corporation	4,267	4,003	4,087	4,308	...	4,310	4,439	4,232	4,458	...	48	246,572	+ 20,851
Birmingham Corporation	38,543	35,976	36,754	36,403	...	41,659	41,979	41,812	42,563	...	48	1,999,368	+ 144,643
Blackburn Corporation	1,903	1,765	1,728	1,702	...	2,000	2,014	1,944	1,943	...	47½	96,853	+ 686
Bradford Corporation	13,764	12,826	12,670	12,820	...	13,971	14,810	13,742	13,844	...	48	710,474	+ 39,761
Brighton Corporation	1,923	1,711	1,844	1,828	...	2,066	2,055	2,037	2,071	...	48	123,496	+ 3,898
Burnley Corporation	3,866	3,162	3,241	3,296	...	3,687	3,353	3,629	3,312	...	...	...	...
Burton-on-Trent Corporation	415	397	724	724	...	850	797	794	839	...	48	25,844	+ 6,232
Bury Corporation	2,324	1,971	2,149	2,103	...	2,687	2,600	2,630	2,679	...	48	124,664	- 3,225
Cardiff Corporation	6,909	6,524	7,038	6,859	...	7,369	7,106	7,076	7,248	...	47½	370,014	+ 9,370
Chatham and District	991	879	846	868	...	1,041	963	990	989	...	8	8,621	+ 618
Chesterfield Corporation	1,888	1,791	1,828	1,856	...	1,971	1,957	1,949	1,921	...	48	95,307	+ 3,723
Colchester Corporation	411	376	402	458	...	518	535	535	548	...	49	27,268	+ 5,167
Colne Corporation	631	687	574	594	...	619	615	631	633	...	48	33,951	+ 317
Coventry Corporation	3,533	3,227	3,416	3,412	...	3,940	3,825	3,782	3,819	...	48	183,389	+ 23,668
Darlington Corporation	957	951	932	940	...	1,014	998	977	1,018	...	47½	48,218	- 1,461
Derby Corporation	2,965	2,880	2,868	2,791	...	3,145	3,214	3,121	3,122	...	48	156,851	+ 12,105
Dover Corporation	310	282	292	293	...	357	340	338	337	...	48	19,478	+ 727
Dundee City	3,199	3,053	3,229	3,166	...	3,273	3,252	3,191	3,289	...	41½	144,278	+ 5,591
East Ham Corporation	2,110	2,052	2,145	2,211	...	2,336	2,263	2,288	2,319	...	47½	110,476	+ 5,309
Edinburgh Corporation	15,473	14,748	15,213	15,241	...	16,899	16,626	16,436	16,754	...	41½	742,256	+ 43,254
Exeter Corporation	756	696	659	729	...	779	715	709	707	...	48	40,671	+ 688
Glasgow Corporation	47,956	44,257	45,213	45,916	...	51,236	50,195	48,958	50,382	...	39	1,977,684	+ 150,697
Gloucester Corporation	496	464	440	460	...	652	615	623	621	...	47½	28,847	+ 2,789
Grimsby Corporation	1,232	1,229	1,199	1,206	...	1,464	1,409	1,416	1,397	...	48	70,240	+ 6,654
Halifax Corporation	3,990	3,541	3,797	3,736	...	4,969	4,871	4,765	4,882	...	48½	229,825	+ 21,374
Huddersfield Corporation	6,143	5,543	5,590	5,534	...	6,111	6,175	6,009	6,038	...	48	307,470	+ 4,949
Hull Corporation	7,172	6,880	6,769	6,968	...	7,403	7,145	7,047	7,146	...	48	359 060	+ 10,799
Ilford Corporation	1,382	1,274	1,359	1,395	...	1,455	1,432	1,443	1,444	...	47	72,015	+ 1,713
Ipswich Corporation Trolley Buses ...	1,154	1,061	1,073	1,114	...	1,205	1,199	1,190	1,206	...	48	61,858	+ 4,325
Isle of Thanet	321	301	266	304	...	334	308	324	346	...	8½	2,803	+ 217
Kilmarnock Corporation	425	402	413	403	...	453	463	435	440	...	41½	19,857	+ 1,433
Leeds Corporation	18,002	16,596	17,021	17,384	...	19,050	18,836	18,971	19,039	...	47½	939,286	+ 34,554
Leicester Corporation	7,802	7,289	7,519	7,508	...	8,108	8,008	8,164	8,172	...	48	405,655	+ 20,916
Lincoln Corporation Buses	843	815	803	803	...	858	844	836	844	...	48	44,377	+ 1,950
Liverpool Corporation	28,031	26,031	27,194	27,490	...	28,719	28,279	28,292	28,440	...	47½	1,442,813	+ 31,051
London County Council	78,711	75,999	73,645	77,089	...	82,460	79,772	79,556	79,601	...	47½	3,969,359	+ 72,928
Luton Corporation	344	320	311	311	...	386	357	353	360	...	47½	19,227	+ 1,275
Maidstone Corporation	680	640	617	622	...	730	703	731	741	...	47½	38,706	+ 3,107
Manchester Corporation	36,984	34,697	36,170	37,009	...	39,226	39,016	38,677	39,388	...	48	1,918,303	+ 57,460
Middlesbrough Corporation	1,509	1,432	1,510	1,455	...	1,652	1,674	1,586	1,626	...	48½	80,654	+ 3,806
Newcastle-on-Tyne Corporation ...	10,772	9,868	9,986	10,086	...	11,126	10,828	10,713	10,880	...	48	568,097	+ 30,375
Newport Corporation	2,217	2,105	2,185	2,208	...	2,343	2,293	2,240	2,260	...	48	117,648	+ 3,249
Northampton Corporation	1,659	1,583	1,551	1,583	...	1,710	1,658	1,633	1,663	...	47½	85,448	+ 1,385
Nottingham Corporation	8,953	8,521	8,587	8,510	...	9,870	9,615	9,693	9,728	...	47½	459,991	+ 20,848
Oldham Corporation	5,242	4,617	4,863	5,060	...	5,440	5,282	5,374	5,350	...	49	273 894	+ 13,237
Plymouth Corporation	4,839	4,544	4,768	4,719	...	5,302	5,095	5,014	5,227	...	47½	275 546	+ 11.865
Portsmouth Corporation	4,855	4,411	4,706	4,661	...	5,721	5,464	5,388	5,592	...	48	309,555	+ 19,922
Preston Corporation	2,081	2,035	1,858	1,956	...	2,114	2,023	1,997	1,973	...	47½	105,251	+ 4,036
Rawtenstall Corporation	1,295	1,142	1,189	1,175	...	1,323	1,277	1,310	1,307	...	48	65,792	+ 1,600
Reading Corporation	2,201	2,109	2,117	2,150	...	2,422	2,276	2,244	2,268	...	48	117,172	+ 3,458
Rochdale Corporation	4,148	3,756	3,788	3,833	...	4,153	4,108	4,089	4,130	...	...	213,349	— 510
Rotherham Corporation	2,400	2,248	2,318	2,390	...	2,733	2,739	2,710	2,645	...	49	134,765	+ 11,820
Salford Corporation	9,992	9,282	9,919	10,057	...	11,197	11,069	11,111	11,261	...	48	540,794	+ 37,834
Sheffield Corporation	19,898	18,448	18,833	18,319	...	20,460	20,614	20,143	20,012	...	48	1,005,850	+ 35,849
Southampton Corporation	3,631	3,495	3,512	3,557	...	4,124	3,933	4,001	3,919	...	48	202.331	+ 26,725
Southend-on-Sea Corporation	1,664	1,583	1,639	1,744	...	1,829	1,824	1,798	1,905	...	47½	115,540	+ 1,371
Southport Corporation	1,354	1,229	1,268	1,315	...	1,454	1,358	1,337	1,370	...	47½	80.325	+ 655
St. Helens Corporation	1,841	1,861	1,754	1,845	...	2,034	2,027	1,920	1,890	...	47½	97,254	+ 6,690
Sunderland Corporation	2,082	1,951	1,946	2,015	...	2,300	2,284	2,186	2,271	...	48	116,609	+ 5,263
Swindon Corporation	573	528	569	523	...	906	831	849	836	...	47½	39,423	+ 11,592
Wallasey Corporation	2,759	2,465	2,659	2,665	...	2,895	2,817	2,797	2,798	...	47½	160.663	+ 18,436
Walsall Corporation	3,228	3,055	3,014	3,092	...	3,517	3,488	3,453	3,646	...	48	166,936	+ 15,083
Walthamstow Corporation	2,134	1,921	2,067	2,059	...	2,312	2,273	2,293	2,314	...	48	116,702	+ 8,731
Warrington Corporation	1,315	1,323	1,242	1,327	...	1,346	1,303	1,291	1,300	...	48	64,967	+ 2,417
West Ham Corporation	5,324	5,313	5,319	5,601	...	6,146	5,971	5,971	5,976	...	47½	291,125	+ 26,323
Wolverhampton Corporation	5,698	5,447	5,653	5,458	...	6,020	5,885	5,689	5,960	...	48	295,296	+ 26,591
York Corporation	1,205	1,149	1,206	1,213	...	1,389	1,358	1,357	1,403	...	49	71.714	+ 5,669

Underground Electric Railways Company of London, Limited.

NAME OF COMPANY	1929. WEEKS ENDING					1930. WEEKS ENDING					AGGREGATE.		
	Feb. 9	Feb. 16	Feb. 23	Mar. 2	...	Feb. 8	Feb. 15	Feb. 22	Mar. 1	...	Wks.	1930	Increase or Decrease
	£	£	£	£	£	£	£	£	£	£		£	£
Underground Rlys. (Common Fund Co.)	264,600	244,100	257,800	261,100	...	288,400	288,200	290,000	294,200	...	9	2,544,800	- 270,600
London and Suburban District	37,400	33,400	35,900	36,000	...	41,500	41,300	41,400	41,700	...	9	368,700	+ 51,700

Colonial and Foreign Tramway Traffic Returns.

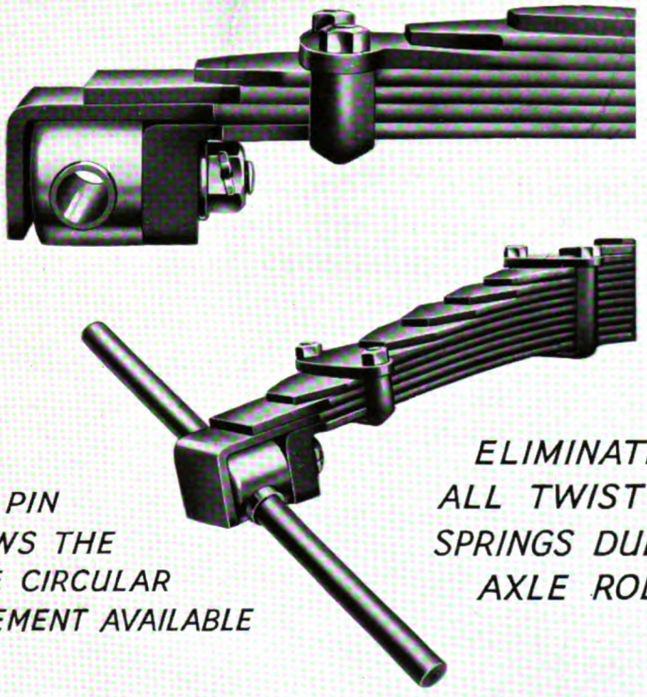
NAME OF COMPANY OR CORPORATION	1929 WEEKS ENDING					1930. WEEKS ENDING					AGGREGATE.		
	Feb. 9	Feb 16	Feb. 23	Mar. 2	...	Feb. 8	Feb. 15	Feb. 22	Mar. 1	...	Wks.	1930	Increase or Decrease
	£	£	£	£	£	£	£	£	£	£		£	£
Anglo-Argentine	88,732	81,113	85,069	89,171	...	86,381	83,091	83,055	78,594	...	9	746.839	— 25,972
Buenos Aires Lacroze	13,641	13,196	13,032	13,246	...	12,746	12 702	12,030	11,784	...	35	406,858	— 35,386
Calcutta ... ... *Rupees*	127,915	126,076	129,218	129,123	...	117,299	122,746	124,752	133,287	...	8½	1,073,062	— 84,775
Madras (2 weeks) ... *Rupees*	...	42,641	...	35,800	...	...	49,195	...	37,165	...	8	180,671	+ 10,835

	1928.		1929.				1929.			1930.			AGGREGATE.		
	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mths.	1929-30	Increase or Decrease
	£	£	£	£	£	£	£	£	£	£	£	£		£	£
Brazilian Trac. $	3,718,263	3,710,347	3,698,213	3,673,543	3,892,833	...	4,225,416	4,289,258	4,145,850	3,984,311	3,862,089	...	1	3,862.089	— 30,744
British Columbia $	1,101,483	1,145,394	1,192,080	1,228,405	...	...	1,169,278	1,230,278	1,270 922	1,255,522	...	...	6	7,251,473	+ 400,836
Burma ... Rs.	69,309	72,878	66,905	62,582	64,372	...	59,467	66,885	62,191	63,485	62,533	...	6	375,870	— 26,062
Cape Town ...	27,145	30,021	...	32,709	...	31,777	26,579	27,501	...	30,332	31,036	...	...	...	...
Carthagena & H....	1,189	1,701	1,130	676	732	972	660	1,953	1,350	1,314	1,351	1,286	2	2,637	+ 933
Durban	22,545	23,402	22,498	26,123	23,916	...	22,371	24,320	23,214	25,452	24,577	...	6	145,553	+ 2,767
East India ...	3,851	3,941	3,803	3,670	3,562	3,055	4,126	4,078	3,905	3,721	3,553	3,127	7	26.662	+ 797
Kalgoorlie... ...	2,056	1,738	1,721	...	...	...	1,980	1,703	1,643	...	...	...	11	18,817	- 369
La Plata	9,089	9,781	9,789	10,300	...	...	9,328	14,104	...	10,327	...	...	12	116,149	+ 2,604
Para	14,578	17,246	14,810	14,360	14,028	...	15,200	17,887	15,542	14,487	14,556	...	2	29,043	+ 655
Port Elizabeth ...	6,741	7,404	...	9,830	9,293	...	7,190	7,593	...	9,115	9,016	...	...	...	...
Rangoon ... Rs.	119,510	126,400	110,770	130,110	116,835	114,300	122,850	132,742	137,703	138,400	155,080	140,130	2	295,210	+ 64,075
Shanghai ... $	327,997	351,115	327,363	321,970	319,220	294,708	365,828	371,611	360,247	345,415	363,400	322,473	2	685,873	+ 71,945
Singapore ... $	109,000	113,000	107,000	111,000	115,000	117,000	126,000	133,000	126,000	129,000	139,000	128,000	5	655,000	+ 92,000
Winnipeg ... $	475,363	527,790	553,186	586,264	...	...	518,521	545,308	597,391	641,362	...	...	12	6,635,237	+ 448,374

Digitized by Google

JONAS WOODHEAD & SONS LTD
LEEDS.

WOODHEADS
SWIVEL SPRING END
SINGLE TRUNNION TYPE



THE PIN SHEWS THE FREE CIRCULAR MOVEMENT AVAILABLE

ELIMINATES ALL TWIST ON SPRINGS DUE TO AXLE ROLL.

PATENT No 314689

LAMINATED SPRING EXPERTS

TELEPHONES
20814
20815
LEEDS

TRADE MARK

TELEGRAMS
FORGE
LEEDS

Digitized by Google

AEC

REGENT BUS

Announcing the recent receipt of a further order from Messrs

THOMAS TILLING LTD

36

"REGENTS" for operation in

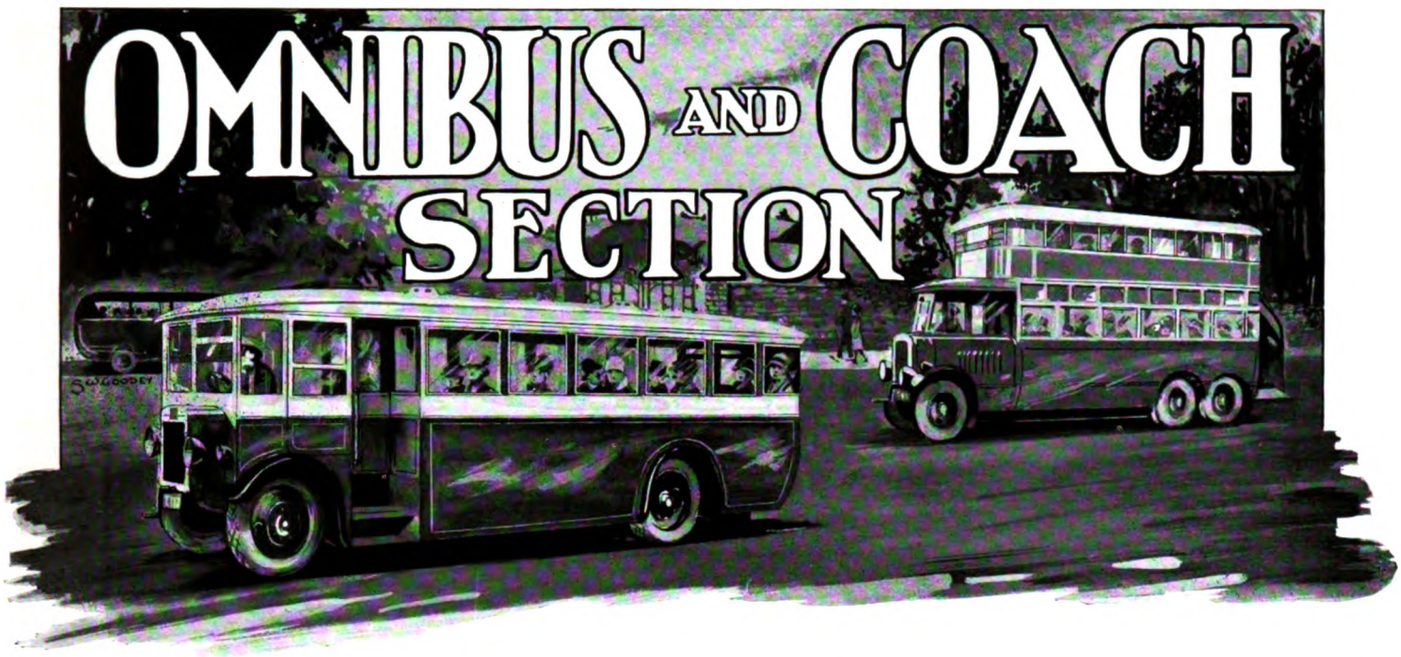
BRIGHTON

The Associated Equipment Co. Ltd. Southall Middlesex

BUILDERS OF LONDON'S BUSES

463

Digitized by Google



OMNIBUS AND COACH SECTION—TWENTY-FIFTH YEAR OF PUBLICATION.

DIESEL ENGINES FOR OMNIBUSES.

Two experiments are in progress in the use of heavy oil engines for omnibuses. One of these has lately been placed in service by the Sheffield Tramways and Motors Department; the other has been in experimental service for twelve months past by the London General Omnibus Company. Last year two promising examples of the Diesel engine were operated in this country in Saurer and Mercedes-Benz lorries, the second mentioned winning the Dewar Trophy for the best performance of the year in Royal Automobile Club tests. A six-cylinder Mercedes-Benz engine, of 77 B.H.P. at 1,650 R.P.M., with cylinders having a bore of 100 m.m. and stroke of 150 m.m., has been fitted at Sheffield to a six-wheel "Karrier" chassis, upon which is mounted a single-deck omnibus body, and from a mechanical point of view the test is proceeding satisfactorily. That result is of no small moment in view of the trying routes to be found in the Sheffield area. Hitherto a drawback to the Diesel engine has been its heavy weight, which would involve higher taxation for a commercial vehicle. With the engine now in use the additional weight per B.H.P. is only four pounds, the power to weight ratio being 1 B.H.P. for 16½ pounds. As to the London experiment, so far it has proved a success, leading to great hopes for the future of the engine for two reasons—the economy and safety of its fuel. The fuel economy aspect of the Diesel engine is reinforced by the fact that in comparison with petrol only about half the quantity is required. The engine under test in London is a German make known as Yunkers, and if it is introduced for general use it will be made under an English patent. It is a matter for regret that this country has a petrol tax, for as long as that is levied the Chancellor of the Exchequer is not likely to permit an alternative and cheaper fuel to remain duty free.

EARNINGS OF THE TOP-COVERED OMNIBUS.

Few double-deck omnibuses are constructed nowadays without a covered top. Vehicles of this description do not add to the attractiveness of the crowded thoroughfares, but there is no mistaking their profitableness and popularity. In appropriate surroundings it is possible even to discern a pleasant aspect to this vehicle. Sailing along on a new arterial road a low-built double-decker with streamlined roof and sides reminds one of nothing so much as a steam yacht at sea. In country and town, and in sunshine and in storm, these machines attract passengers who combine business or shopping with the opportunity of "riding on air" and viewing the countryside from a height. Local authorities are the best buyers of these vehicles, and the large companies operating from town to town are finding them indespensable for the new nightly migration from country to town. With low running costs they are able to keep to the road when traffic is slack. It would be interesting to learn from operators who formerly ran the old open top omnibuses, the amount of the increase in earnings per mile gained from the new type. In London a year after the first conversions it was authoritatively stated that the covered-top earned 3d. per mile more, after allowing for the higher fuel consumption and bodywork cost. That was when every vehicle was solid-tyred and inferior in all round comfort to the present day omnibus. Barely three and a-half years have elapsed since the metropolitan licensing authority, with the support of the Ministry of Transport, agreed to the running experimentally of four top-covered omnibuses, and now all the "General" fleet, save the oldest type which is being withdrawn from service, has been so equipped. The reason is to be found in the higher receipts, which betoken popularity with passengers. With the top-deck windows under the control of the riders one can sit aloft without being baked in the hottest summer; in winter fresh air is obtainable without being chilled to the bone.

WEIGHT RESTRICTIONS.

With the continuous development of passenger road services, the question of increasing the maximum weight for four-wheel vehicles becomes more insistant. It has been found that the most satisfactory type of

Digitized by Google

OMNIBUS AND COACH SECTION

covered-top double-deck omnibus, from the operator's standpoint, is one that provides seating accommodation for 54 passengers. Given wide entrances and well-designed stairways this type can be operated in heavy traffic with ease and with comparatively short stops, so that as a traffic unit it can also claim consideration as one of the most satisfactory means of transporting masses of the public with the least amount of congestion. With the present maximum weight limit of nine tons, the carrying of 54 passengers is only possible on certain makes of chassis, and then only by cutting out everything that can be cut out after full advantage has been taken, both by the chassis manufacturers as well as the body builder, of the light-weight alloys which are now so extensively used. In the majority of cases the present gross weight limit calls for the sacrifice of two or four seats, which in a large fleet is a matter of considerable importance from a revenue point of view, as well as reducing the vehicle's efficiency as a traffic unit. The fact that goods-carrying vehicles are permitted to take a load largely in excess of that allowed to the passenger vehicle, disposes of the argument that road wear considerations have been the determining factor. It is, therefore, difficult to understand the reasons for the arbitary decision of the Ministry. In the early years of omnibus operation in London drastic reduction in weight was insisted upon by the Metropolitan Police, and in spite of the protest of manufacturers that it was impossible to conform thereto, satisfactory vehicles were evolved. It is possible that the Minister of Transport may have acted upon similar advice. However commendable such methods may have been in the early days of the motor omnibus, the fact that approximately fifteen hundred million passengers were carried by omnibus last year in London alone, indicates that there should be the closest co-operation between the manufacturers, operators and road engineers, together with the advisers of the Ministry, before cast-iron regulations are enacted. With the higher speeds which the Road Traffic Bill proposes, the question of more powerful brakes will also have to be considered, as well as strengthened bodywork to withstand the increased stresses. If, therefore, the limit of weight reduction has already been reached, it is obvious that the present maximum weight regulations are an unfair handicap, and will retard the progress of a most important industry.

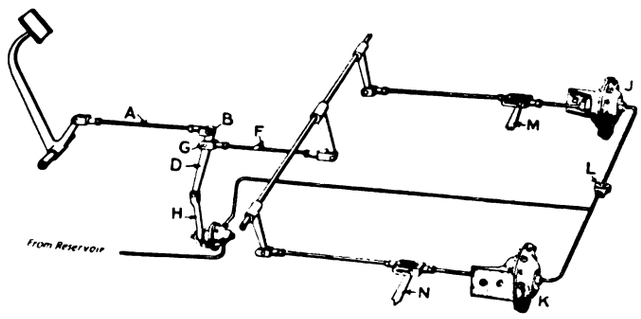
THE WESTINGHOUSE SERVO BRAKE.

Compressed air brakes for road vehicles have long been a product of the Westinghouse Brake and Saxby Signal Company, of York Road, London, N.1, and have been described and illustrated in these pages. Lately the company has developed the vacuum servo-brake in order to meet the traffic needs of the times. It is no longer desirable, and is in many cases unsafe, to depend on the unaided strength of the driver of a heavy passenger or commercial vehicle for the brakes to be applied with sufficient force to stop in the reduced time now available.

Hence the company's development of the vacuum servo system, which derives its power from the partial vacuum created by the pistons of the internal-combustion engine. It can be arranged either as a servo, *i.e.*, as an assistant to the driver in applying the brakes through the usual brake rods connected to the brake pedal, or a separate brake system in which the driver has only to operate a control valve, the braking force being applied solely through the brake cylinder or cylinders. Both arrangements have special uses.

The characteristic of the servo brake, as mentioned above, is that the brake pedal not only operates a valve controlling the degree of vacuum in the brake cylinder, but is also connected to the mechanical brake rods in the usual manner. Thus, the Westinghouse vacuum servo is a combined vacuum and mechanical system. So long as the servo is in action, the power derived from the vacuum is added to that of the driver's muscles. In the event of there being no vacuum available at any moment, the driver must depend on his own strength to apply the brakes.

As one side of the brake cylinder piston is always open to the atmosphere, the assistance attributable to the servo depends on



Arrangement of Westinghouse Servo Brake.

the degree of vacuum existing on the other side of the piston. This is regulated by the control valve in exact proportion to the pressure applied to the pedal by the driver, who can thus at all times feel the degree of braking.

The control valve and brake cylinder may be combined in one unit, or arranged separately, as may be the most convenient for the type of chassis. In the latter case, one control valve may control one or more brake cylinders, one of which may be on a tractor and the other on a trailer. The brake cylinders are of various sizes to suit different weights of vehicles, and can be fitted with slotted crossheads, which enable the brakes to be applied mechanically without moving the pistons, should the servo be out of action.

When it is desired to use the Westinghouse brake in conjunction with, and as an auxiliary to, the mechanically-operated brake mechanism, the arrangement shown in the appended sketch may be employed:

The pull rod *A* is coupled to a floating lever *D* at point *B*. The other end of lever *D* is connected to the valve operating lever *H*. At point *G* on lever *D* is attached a rod *F* which is connected at its further end to the mechanical brake rigging. Brake cylinders *J* and *K* are located so that their push rods are connected by slotted crossheads to camshaft levers *M* and *N*, and a pipe is run to each cylinder from the brake valve via the quick release valve *L*.

The action is as follows: When the driver depresses his foot-brake pedal he pulls on rod *F*, tending to apply the brakes mechanically in the usual way. When the slack is all taken up, however, crank *D* pivots about point *G* and moves brake valve operating lever *H* to the right, admitting pressure from the reservoir to the brake cylinders, the pistons of which are pushed out, thus applying power to the brakes through levers *M* and *N*.

It will be seen, therefore, that for any given pressure on the foot pedal a greatly increased yet proportional brake force is applied by power to the brake. Also, this arrangement, by the use of two separate brake cylinders, gives perfect compensation, and equal braking force on both wheels. The arrangement can be extended so as to apply power to the brakes of any number of wheels by the simple addition of the requisite number of brake cylinders.

A NEW GEAR OIL.—A new brand of gear oil which is claimed to maintain its vicosity up to the highest petrol engine temperature, is being placed on the market by C. C. Wakefield & Co., of Wakefield House, Cheapside, London. It will be known as Castrol "Swanshot S" and will be supplied at the same price as Castrol S gear oil. It is full bodied, and a strong point in its favour for public service vehicle use is that it remains fluid at the low temperature of 10 deg. below zero F. For centralised chassis lubrication it is strongly recommended.

Digitized by Google

OMNIBUS AND COACH SECTION

LONDON'S HILL CLIMBING OMNIBUSES.

PRESENT PERFORMANCES TO BE ECLIPSED BY THE "REGENT" 95-H.P. ENGINE.

The London General Omnibus Co. has not delayed the modernisation of the bulk of its fleet of some five thousand vehicles without good reason, for, as the result of a few years' running of a considerable number of double and single-deck vehicles with pneumatic tyres, a much more powerful and economical engine has been evolved by the Associated Equipment Co., Ltd., in collaboration with the engineers of the L.G.O.C. As the association between the technicians and operating staffs of the two companies extends to the now distant year of 1910, when the "B" type of omnibus was introduced, more appropriate conditions for securing the best possible vehicle could not be desired.

The new engine and chassis is the "Regent," which is this year taking the place of the "K" type solid-tyred omnibus, introduced in 1919, on the withdrawal of the "B" type. With its six cylinders, this 95 H.P. engine was one of the attractions of last year's International Exhibition of public passenger and commercial vehicles, and prior to its appearance at Olympia it had undergone tests at the hands of municipal and company operators. In addition it was subjected to a twelve hours' test of 500 miles continuous running on the Brooklands racing track, often at a speed of 50 M.P.H., and including ascents of the 1 in 4 gradient.

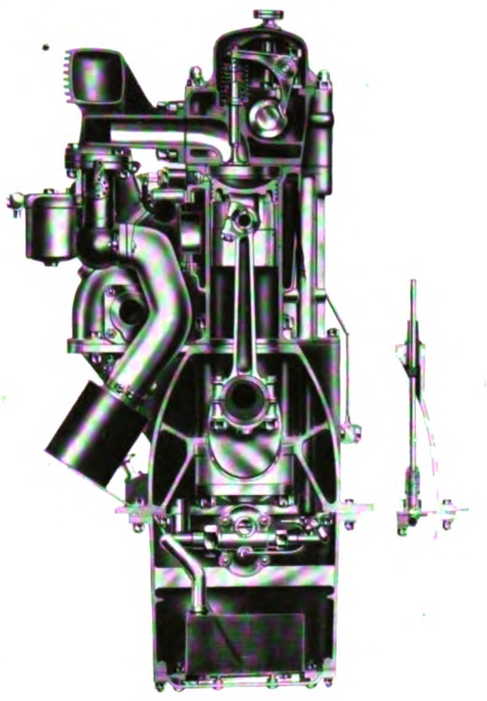
With the 95 H.P. power unit and its greater acceleration, the L.G.O.C. omnibus will be able to maintain, with the greatest ease and with comfort to passengers, the speed of 20 M.P.H. now permitted to pneumatic-tyred omnibuses, or the 30 M.P.H. which is proposed under the Road Traffic Bill. The new engine affords an interesting contrast with the four-cylinder 30 to 45 H.P. engine of the "NS" low-loading omnibus which was introduced in 1923 to carry fifty passengers. It was the medium-powered "NS" engine that enabled the omnibuses to conquer the steepest hills, thereby permitting a number of services to be extended. Appended is a list of the principal gradients traversed by "General" omnibuses :—

Thoroughfare.	*Locality.*	*Steepest Gradient.*
Bittacy Hill	Mill Hill	1 in 9
Blackheath Hill	Blackheath	1 „ 9
Buckhurst Hill	Loughton	1 „ 8
Crouch End Hill	Crouch End	1 „ 10·5
Hammers Lane	Mill Hill	1 „ 8
Highgate Hill	Highgate	1 „ 8
Knight's Hill	Norwood	1 „ 9
Muswell Hill	N.	1 „ 9
Shooters Hill	Woolwich	1 „ 9
South Norwood Hill ..	South Norwood ..	1 „ 9·7
Summer Hill	Chislehurst	1 „ 10
West Hill	Sydenham	1 „ 9
Westcombe Hill	Blackheath	1 „ 10

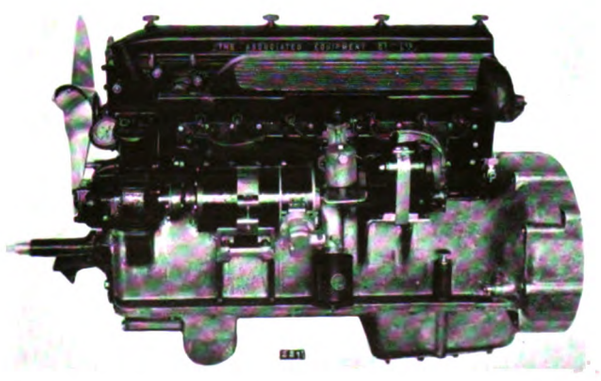
It is true that with the present engines the drivers have to change to bottom gear for the steepest parts of the inclines, but in the early days it was none the less a spectacle for suburban residents to watch a double-deck omnibus surmounting the obstacle. In the evenings a vehicle with an uncovered top would not only be carrying fifty seated passengers, but five who stand in the lower saloon during the rush period. Slowly but surely the ascent was made, and many months before the end of 1926, when the upper decks were given covers, pedestrians ceased to be interested in these hill climbs, although the top cover added half a ton to the body weight of five tons and two passengers to the twenty-six allotted to the open top deck. With half a load the hills are generally traversed at from 10 to 15 M.P.H.

On no occasion have we heard of mishaps to London omnibuses on hills, although their safety depends upon a combination of the human factor and a mechanical device. By a regulation of the Public Carriage Department omnibuses on hilly routes have to be fitted with a sprag. This device, as made by the L.G.O.C., locks the rear near-side wheel in the event of engine failure, provided engagement of the sprag has been made at the foot of the hill.

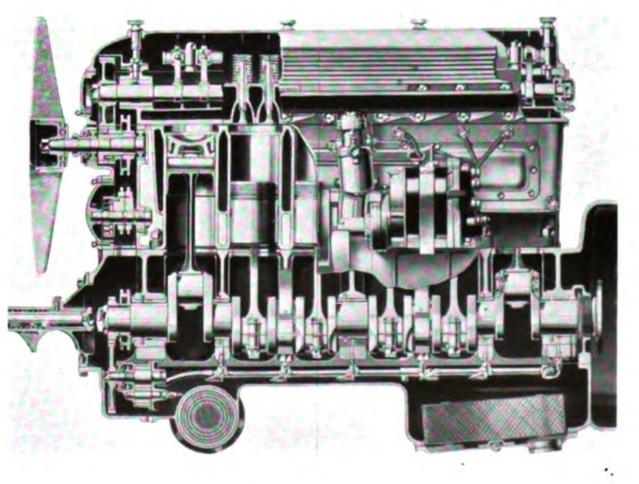
A remarkable change will be effected on hills from the dual aspect of safety and speed. No longer will the sprag be necessary,



Cross-Sectional View of A.E.C. "Regent" Engine. Also Variable Oil Pressure Control.



Full Near-Side View of A.E.C. 95-H.P. Engine.



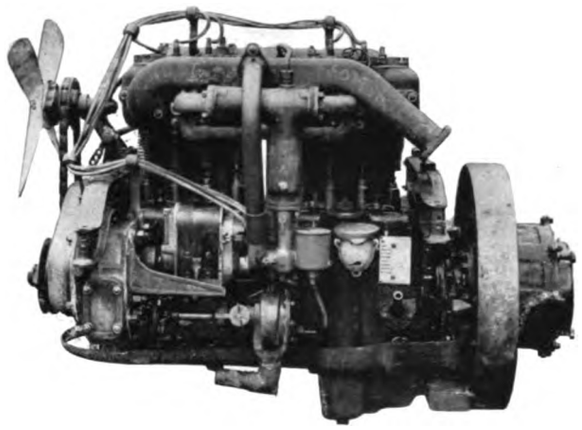
Longitudinal Cross Section.

Digitized by Google

OMNIBUS AND COACH SECTION

and it is to be abolished. This is due to the introduction of four-wheel brakes. Either of the two brakes—foot or hand—will hold the new omnibuses on any of the hills. As to speed there will be less risk with the 95 H.P. omnibus proceeding at anything approaching the new limit than is the case with the existing vehicles. The reason is, of course, that the braking system allows of rapid but smooth deceleration, and that the foot-brake, which operates on all four wheels, is assisted by means of a vacuum-servo mechanism.

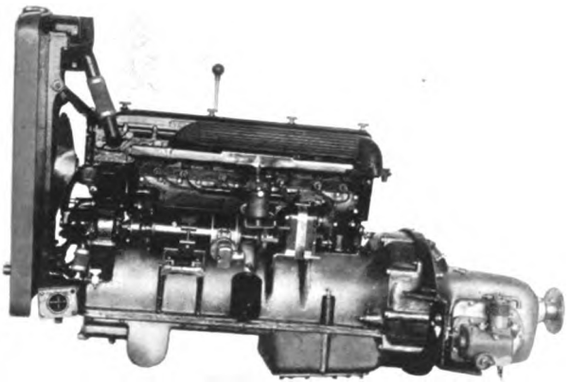
Thus there is a great reduction of strain on the driver. The hand-brake operates on the rear wheels. All twelve brake-shoes



Four-cylinder 100 mm. Bore by 140 mm. Stroke
35 H.P. Engine.

are interchangeable and are fitted inside high-carbon hardened steel drums, enclosed by dust covers to keep dust from the friction surfaces. Any adjustment that may be required is made on all four wheels by a single hand-nut easily accessible under the driver's floor board, and no other adjustment will be required during the life of the brake linings.

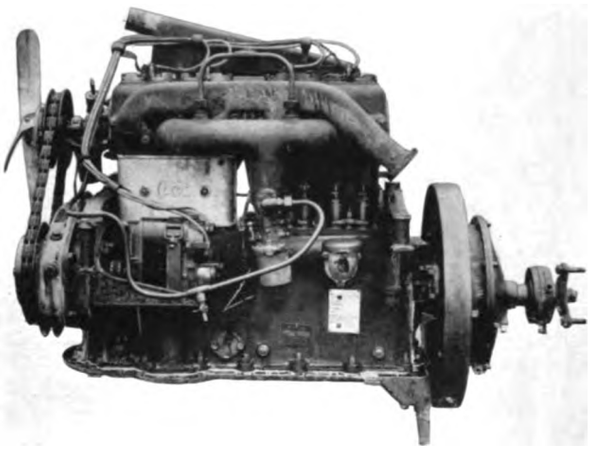
Another notable change will be seen in the speed at which the omnibuses will ascend hills; single-deck vehicles will do the ascent at twice their present speed. Hills can be climbed with little gear-



A.E.C. "Regent" Engine, Radiator and Gear-box.

changing. Only if the engine stops will it be necessary to get into the lowest gear. An electric starter is fitted as standard equipment.

Interesting contrasts between the "K," "S" and "NS" four-cylinder engines and the six-cylinder "Regent" are afforded by the accompanying illustrations. The latter engine embodies the knowledge gained over a period of many years, and represents what has been found to be the ideal power unit for both metropolitan and provincial public service work. The L.G.O.C. has an eight-cylinder engine in experimental use, but up to the present the six-cylinder engine holds pride of place as being quieter in all conditions for public service and commercial use. It is fitted to three types of A.E.C. vehicles, namely, the double-deck omnibus chassis, the "Regal" single-deck omnibus and coach, and the six-wheel "Renown" chassis used for double-deck omnibuses. It has cylinders of 100 mm. bore by 130 mm. stroke, as contrasted with the "K" four-cylinder type's 100 mm. bore and 140 mm. stroke, which gave 35 H.P., and the "S" and "NS" four-cylinder engines' 108 mm. bore and 140 mm. stroke, providing 45 H.P. Rated at



Four-cylinder 108 mm. Bore by 140 mm. Stroke
45 H.P. Engine.

37–2 H.P. the six-cylinder engine develops 48 B.H.P. at 1,000 R.P.M., and then smoothly and without vibration surges up to an output of 95 B.H.P. at 2,500 R.P.M. One of the most important factors conducing to the smooth, vibrationless running is the 2¾ in. diameter seven-bearing crank-shaft, which is of exceptional rigidity. The weight of the engine is only 9 cwt., and all its accessories are placed on the near-side.

In conclusion reference may be made to the fact that the A.E.C. "K" type omnibus has already given ten years' service, a tribute to the efficacy of the overhauling periodically given to engine, chassis and body at the Chiswick works of the L.G.O.C. It is also noteworthy that the fleet, running over more than 1,000 miles of road, loses only 1·44 miles in every possible 10,000 miles in consequence of mechanical defects.

MANCHESTER ORDERS MORE OMNIBUSES.

At a meeting of Manchester Tramways Committee the general manager reported that he had examined tenders received for the supply of fifteen single-deck motor omnibus bodies, and he recommended the acceptance of the second lowest tender, viz., that of the Vulcan Motor and Engineering Co., Ltd., of Southport. The bodies would be exactly the same as those built in the Hyde Road workshops of the Corporation. In considering the question of the most suitable chassis he had previously emphasised the desirability of standardising on a few makes. On the last occasion that tenders were considered, orders were placed with Crossley Motors, Ltd., and Leyland Motors, Ltd. The Committee had had some of the omnibuses of these makers in operation, and he could give the Committee experience with these vehicles up to date. He wished to point out that first cost should be considered of minor importance. The chief factors which should receive consideration were maintenance cost and reliability. In all circumstances he recommended that a further order for thirty chassis should be divided as follows: Crossley Motors, Ltd., fifteen chassis; Leyland Motors, Ltd., fifteen chassis. The Committee recommended the acceptance of the following tenders: Vulcan Motor and Engineering Co., Ltd., fifteen single-deck omnibus bodies; Crossley Motors, Ltd., fifteen single-deck motor omnibus chassis; Leyland Motors, Ltd., fifteen single-deck motor omnibus chassis.

Digitized by Google

OMNIBUS AND COACH SECTION

COVERED TOP OMNIBUSES FOR MANCHESTER.

DOUBLE-DECK OMNIBUSES REPLACE SINGLE-DECK TRAMCARS.

One of the latest type of omnibus to be placed in service by Manchester Corporation is shown in the appended illustrations. The chassis is the Leyland "Titan," with a low-built body by Strachan (Acton), Ltd., arranged to seat 50 passengers, twenty-four on the lower deck and twenty-six on the upper.

As stated in a previous issue of THE TRAMWAY AND RAILWAY WORLD, Manchester Corporation recently decided, on the advice of Mr. R. Stuart Pilcher, the tramways and transport manager, to substitute double-deck omnibuses for the single-deck tramcars on the circular route running through the outskirts of the city. The deciding factors for the change were partly the worn condition of the track and partly the necessity for greater seating accommodation than that afforded by the single-deck tramcars. By the use of specially-designed vehicles it has been found possible to operate double-deck omnibuses over the entire route, notwithstanding that a number of low bridges made the route impossible for double-deck tramcars.

The outstanding features of the new Manchester omnibuses, which, as will be seen from the illustration, have most pleasing lines, is the sunk gangways in both the upper and lower saloons, the exceptionally easy staircase, and the wide entrance platform. Although the overall height is only 12 ft. 10 in., there is a clear headroom of 5 ft. 10 in. in the centre gangway in the lower saloon and 5 ft. 8 in. in each of the side gangways in the upper saloon. This headroom in the lower saloon has been gained by lowering the floor of the gangway 2½ in. below the general floor level, an alteration which has been rendered possible by the transmission of the Leyland "Titan" chassis being offset to the near side of the frame.

The seats are well spaced and are designed to give the utmost comfort, and at the same time are remarkably light in weight. By a special form of seat support it is claimed that a reduction in weight of approximately 1½ cwts. has been secured without interference with the stability or durability of the seats. In the lower saloon the seats are arranged in pairs facing forward on either side, of the centre gangway. In the upper saloon there are eight rows, each seating three passengers, with sunk gangways on either side; the step from the gangways to the flooring of the seats being 8 in. There are also seats for two passengers at the rear of the saloon behind the staircase. All the seats in both saloons are upholstered in antique red leather, the backs and the bottom panels in the lower saloon being covered in red carpet to tone. A novelty in conjunction with the triple seats in the upper saloon is the fitting of a detachable arm. It has been found in practice that with this type of seat and the sunken gangway, passengers are somewhat liable to be unseated if the omnibus swerves suddenly when running at any considerable speed. Messrs. Strachans have therefore introduced this arm, which can easily be removed.

The enclosed staircase, as already stated, is designed to give easy access to the upper saloon. It is carried well into the body so that broad treads and comparatively low risers are possible. This design, in conjunction with the well-placed handrail and grabs, makes for an exceptional degree of safety as well as comfort when the vehicle is moving.

In the lower saloon an emergency door is fitted immediately behind the front bulkhead, on the offside. To this is fitted an automatic step, so that when the door is opened the step falls into position and so forms an easy exit.

The interior woodwork in both the upper and lower saloons is polished walnut with white enamelled roofs. There are six drop windows on each side in both compartments, with deep glass louvres over the lower windows and aluminium louvres over the upper. All the drop windows are fitted with the Rawlings rod-type window-regulating mechanism. Polished plate $\frac{3}{16}$ in. thick is used for the drop windows and selected 32-oz. sheet glass for all fixed windows. Hit-and-miss ventilators are fitted on the off side of the lower bulkhead and a louvre ventilator in the near side. Louvre ventilators are also placed on the front of the upper saloon.

Manchester Corporation Omnibus on Leyland "Titan" Chassis.

Special attention has been paid to the lighting of these omnibuses. A new type of jelly-mould fitting, but in clear glass with "Pearl" lamps and white enamel reflectors, is mounted in both saloons, eight in the lower and ten in the upper. This lamp has been designed for low-built double-deck omnibuses and, while it ensures brilliant lighting, offers the least possible obstruction. They were designed and supplied by Geo. Johnston, Ltd., of London.

All the internal grab handles and metal fittings are of stainless steel, in contrast to the dark wood finishings, and give a most pleasing effect. In the lower saloon the usual wood slats cover the

Digitized by Google

OMNIBUS AND COACH SECTION

central gangway, but in the upper the whole floor is covered in battleship linoleum.

The construction of the bodies is such as to give the minimum weight for the specified accommodation. Thus the framework has been lightened wherever possible consistent with the stability of body, light steel flitch plates being inserted to ensure the required strength. The outside panels are of aluminium, three-ply wood being used for the interior. A commodious cab fitted with unsplinterable glass screens is provided for the driver, while roller destination and route number indicators are fitted at both ends. "Numa" bells with pushes in convenient positions are fitted.

Interior of Upper Saloon.

A novel arrangement for the collection of used tickets is provided on the end of the body on the conductor's platform. It takes the form of a receptacle concealed in the rear panelling, with a slot for the reception of the tickets. By raising a flap at the bottom of the receptacle the tickets can be easily removed.

The exterior finish is in the Manchester Corporation standard colours, the panelling of both the upper and lower decks being in Mitcham red, with broad bands of white above and below the windows, the roof being finished in white. The lining is in brown,

Interior of Lower Saloon.

white, and gold. Altogether the vehicles have an imposing appearance, and the excellence of the finish both internally and externally makes them a worthy addition to the Manchester fleet.

Messrs. Strachans are building twelve of this type of omnibus all on Leyland "Titan" chassis, several of which are now in service.

MANCHESTER APPEAL TO MOTORISTS.—The General Purposes Committee of Manchester Corporation, in view of the decision to withdraw from the Parliamentary Bill the clause which would make it compulsory for motorists to bring their cars to a stop when tramcars are setting down or picking up passengers, has decided to appeal to the various motoring organisations to show special regard for the comfort and safety of tramway passengers.

SIX-WHEEL DIESEL-ENGINE OMNIBUS.

A SHEFFIELD CORPORATION INNOVATION.

There has lately been placed in service by the Omnibus Department of Sheffield Corporation a "Karrier" six-wheel omnibus propelled by a Diesel engine. This vehicle has a body which seats 55 persons.

ENGINE FEATURES.

The process of conversion necessitated the removal of the existing engine and clutch, and the substitution of a six-cylinder Mercedes-Benz compression-ignition engine. This particular unit is of the type that was shown as a separate exhibit at Olympia in November last. The bore and stroke are 100 mm. and 150 mm. respectively, giving a capacity of 7 litres. The power output is 77 B.H.P. at 1,650 R.P.M., whilst the B.H.P. per litre is 11, at that part of the power curve where the crankshaft attains 1,650 R.P.M. The consumption is 200–220 grammes per B.H.P. hour.

It is interesting to note that the power-to-weight ratio in the case of this Diesel engine is 16¼ lb. per B.H.P., that is, only 4 lb. per B.H.P. heavier than the corresponding petrol engine.

Overhead valves, vertically disposed in the combustion chambers, are operated by push-rods on the off side. There is a single camshaft on the off side, and the distribution drive is at the rear end of the engine, with a view to preventing it from being a source of noise. The Bosch fuel nozzles are located in the cylinder heads, and are normally hidden by cast-aluminium domes, of which there are two—one for each detachable cylinder head. The engine has a remarkably clean appearance.

The cylinders are cast in two blocks of three. On the off side are the water pump and dynamo, driven in tandem from the rear

Sheffield Corporation's Diesel-Engine "Karrier" Six-Wheeler.

end of the engine. Above the dynamo is carried the Bosch fuel pump, which is connected by short lengths of piping to the fuel nozzles in the cylinder heads. The heater plugs are also situated on the off side; these are used, of course, for starting from cold, after which ignition becomes automatic.

ROAD PERFORMANCE.

This conversion has been carried out at the instigation of Mr. W. H. Goddard, A.M.I.Mech.E., of Leeds, with the sanction of the Sheffield Omnibus Committee and the co-operation of Mr. A. R. Fearnley, M.Inst.A.E., of Sheffield Corporation Motor Omnibus Department, and the detailed work of the conversion has been effected by the British Mercedes-Benz, Ltd., Davies Street, London, W.1, who arranged for the mounting of the engine unit, complete with a Mercedes-Benz radiator, in the existing sub-frame of the Karrier six-wheel chassis.

On the road, the engine runs silently immediately the load is applied, and the volume of sound when idling is commendably small. This smaller type of engine appears to have improved in this respect upon its larger prototype.

The axle ratio has not been altered, so that the chassis is now geared rather on the low side for one having a Diesel engine. The unit proves very flexible, and there is no smoke from the exhaust, except when starting from cold or accelerating from a crawl.

The special Mercedes-Benz system of cutting out the front three cylinders when braking has been carried out on this converted vehicle, and the power required to operate the brake pedal is very small—thanks to the Clayton-Dewandre servo mechanism. Starting, by electric motor, is a matter of under a second when the engine is hot.

Digitized by Google

OMNIBUS AND COACH SECTION

ATTRACTIVE DOUBLE-DECK OMNIBUS AT GLASGOW.

SIX-CYLINDER CROSSLEY OF 110 H.P. WITH A 50-SEAT BRUSH BODY.

The latest addition to the increasing fleet of omnibuses operated by Glasgow Corporation transport department is shown in the accompanying photograph. This 50-seater is a replica of an exhibit that attracted attention at the International Commercial Motor Transport Exhibition at Olympia last November. It comprises a six-cylinder 38-110 H.P. chassis manufactured by Crossley Motors, Ltd., of Gorton, Manchester, and a body built by the Brush Electrical Engineering Co., of Loughborough. This specially low-built vehicle is coming into extensive use by municipal operators; it was shown at the Great Yarmouth Conference of the Municipal Tramways and Transport Association. When loaded its overall height is 12 ft. 10¾ in. Complete protection is given the driver in his forward position, and the totally enclosed staircase keeps out dust and shelters passengers in wet weather, while the platform is of a width that facilitates loading and unloading. The staircase is of new design to give easy access to the top deck. Seating of the most comfortable description is arranged for 24 persons in the lower saloon and 26 in the upper saloon. Pneumatic balloon tyres, twins in rear, give additional comfort. Ventilation has received special attention, the lower saloon having air extractors along each side as shown in the illustration, the front end being fitted with two ventilators of a new movable panel type of the Brush Company's design. The upper saloon has a three-piece roof with ventilators along each side. The six-cylinder engine (R.A.C. rating 34.4 H.P.) develops 52 H.P. at 1,000 R.P.M., the maximum output being 110 H.P. The vehicle's overall length is 25 ft. 11⅞ in., overall width 7 ft. 5 in., and wheelbase 16 ft. 7½ in.

Members of the Glasgow Transport Committee recently inspected one of the newest double-deck omnibuses, of which the outstanding features are the straight stairway leading to the centre of the upper saloon and a commodious and low-loading platform. The vehicle is similar to those which the London General Omnibus Company is constructing especially for rush-hour traffic in London, which were described and illustrated in THE TRAMWAY AND RAILWAY WORLD of February 13.

Glasgow Corporation's new 50-seat Omnibus.

TROLLEY OMNIBUSES AT NOTTINGHAM.

INCREASING POPULARITY OF THE SYSTEM.

On February 23 Nottingham Corporation inaugurated a new trolley omnibus route on St. Ann's Well Road and Wilford Road. The service is provided by six-wheel double-deck omnibuses of luxurious type, seating sixty passengers each. Members of the Passenger Transport Committee, officials, and guests travelled over the route and expressed satisfaction both with the comfortable riding and flexibility of the vehicles. The new route is just over three miles long and the distance is covered in twenty-one minutes. The conversion of the route to the trolley omnibus system with the new vehicles has cost £29,000.

At a luncheon afterwards, Mr. John Aldworth, who until his recent retirement was for many years a very successful general manager and was responsible for the first introduction of trolley omnibuses into the city, proposed success to the city's latest development. Commenting on the new vehicles, he said the Committee had made a wise choice of system. Mr. Aldworth added that when trolley omnibuses were first tried in Nottingham they proved an immediate success, and he thought the new route would prove equally satisfactory.

Alderman A. Turney, chairman of the Transport Committee, said that they had to face the fact that although the tramcar was still the "supreme crowd-shifter," the time had come when flexibility and speed were two factors of which they had to take more notice. In Nottingham they had twenty-four trolley omnibuses, and the newest vehicles were the best examples that the manufacturers could offer. The Corporation were putting forward a Bill for further powers to convert the whole of their system into trolley omnibus routes as time went on. No municipality of the size of Nottingham, it was safe to say, had done anything approaching what they had done, and within the next ten years it was very likely that Nottingham would have the most up-to-date system of trolley omnibuses in the country.

Mr. W G. Marks, the general manager, spoke in appreciative terms, from the point of view of an official, of the keen interest shown in the undertaking by the Committee. The Corporation now had 200 tramcars, 24 trolley omnibuses, and 102 petrol omnibuses.

Digitized by Google

OMNIBUS AND COACH SECTION

VENTILATION FOR THE OMNIBUS DRIVER.

A Problem Solved by the "Sunsaloon" Hood.

In some omnibuses employing the forward drive cab little or very ineffectual provision has been made for the comfort of the driver, who spends many hours in a confined space that is accessible to engine heat and fumes. What is really wanted is a compromise between the full-open cab, now disappearing, and the ill-ventilated closed type that has taken its place.

The operation of the "Sunsaloon" overhead unit by the driver is extremely simple and can be carried out by one hand in two or three seconds without necessitating any alteration in the driver's position. No press studs, turn buttons, straps, or other fastening devices are employed, and the construction permits of any intermediate position between fully closed and fully opened. Thus in very cold weather, when a large opening might prove unsuitable, the driver can still regulate the hood to obtain an adequacy of pure air.

Every feature of the unit evidences the careful attention paid to all aspects—the hood cloth is of best quality hard-wearing material,

The "Sunsaloon" Hood, Providing Ventilation for the Omnibus Driver.

With the foregoing in mind it is interesting to note that Sunsaloon Bodies, Ltd., of Castleford Road, Sparkhill, Birmingham—makers of the famous "Sunsaloon" heads—offer an excellent remedy in an easily incorporated independent driving cab hood unit embodying their well-known principle. This appears to solve the problem of ventilation in a manner that should meet with the approval of coach builder, proprietor, and driver.

The hood unit is supplied in a trimmed state to suit the forward cabs on all-weather coaches or ordinary service omnibuses, and thus the work of the body builder has been reduced to the minimum. As a matter of fact, when the orifice in the cab roof has been prepared, it is a simple matter to drop in the unit—the whole operation can be completed in less than three hours.

Coach proprietors who desire to stimulate their driver's efficiency will welcome a fitting that caters for his well-being and comfort, particularly in view of the fact that the price of the unit is extremely moderate and adds considerably to the business-like appearance of the coach.

and the finish of the framework leaves nothing to be desired. The unit is an excellent addition to the range of heads supplied by Sunsaloon Bodies, Ltd., and inquiries for quotations will be promptly dealt with.

"BRISTOL" OMNIBUSES AT MERTHYR TYDFIL.

The Bristol 32-seat Superbus illustrated below is one of four recently delivered to the Merthyr Tydfil Corporation. The body is of the L.5 dual-purpose type, and has two doors on the near side.

For two or one-man operation—The "Bristol" Superbus.

The vehicle can be used either for one-man operation (in which case the rear door is locked and the front door serves both as entrance and exit), or alternatively it can be used with a conductor. In this case the rear door becomes the entrance and the front door is used for exit only. The body is mounted on a Bristol 4-cylinder, four-wheel chassis which is widely used by municipal and company operators and has been described in these columns.

Digitized by Google

OMNIBUS AND COACH SECTION

DERBY CORPORATION'S NEW OMNIBUS.

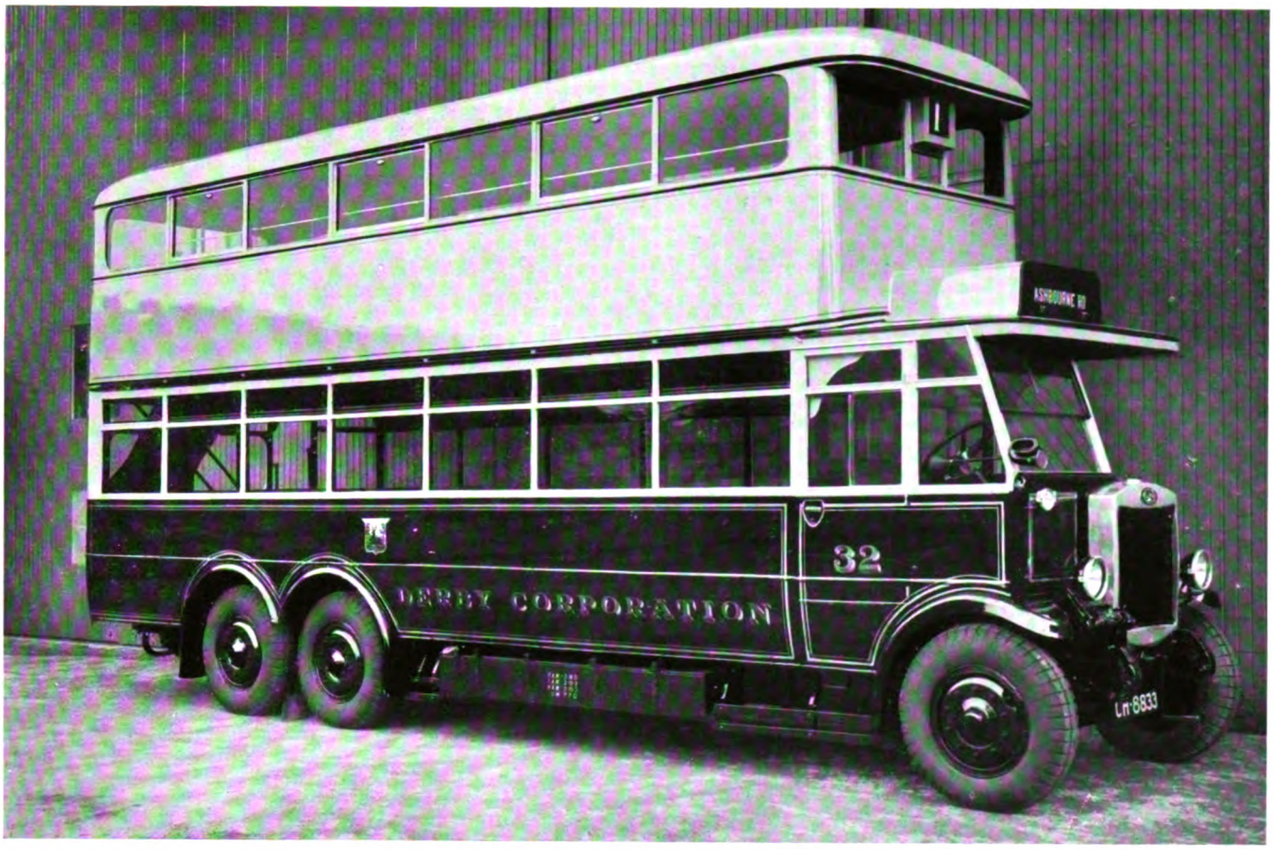
A 65-Seat Six-Wheel Vehicle.

The double-deck, covered-top omnibus illustrated below is one of two recently delivered to the Corporation of Derby. It is mounted on a Guy six-wheel omnibus chassis. The body, built by Ransomes, Sims & Jefferies, Ltd., is of standard construction, with all joints hand fitted and all panels, etc., fixed by screws.

The windows in the lower saloon are fixed, ventilation being provided by means of hinged ventilators controlled by patent fittings. In the upper saloon three windows on each side are arranged to drop and are controlled by Beclawat fittings.

The entrance platform is reached by one step from the ground, the stairway to the upper saloon being entirely covered and constructed with a landing in the centre. Seating throughout is of the rigid type, the upholstery being in brown leather and the panels and seat-backs are finished in polished mahogany. Signalling is by Numa bell, and destination indicators at front and rear are provided, as are also route number indicators.

The body is finished in green and cream, the Corporation colours, making a very attractive vehicle. An important point is that the weight of the body is well under three tons complete with all fittings and ready for the road.



65-Seat Body by Ransomes, Sims & Jefferies, Ltd., on a Guy Six-Wheeler.

More Omnibuses for Newcastle.—Ald. R. Mayne, chairman of the Newcastle Transport Committee, has asked for and obtained the sanction of the Council for the purchase of additional omnibuses, involving a total sum of £70,000. Application will be made to the Ministry of Transport for authority to borrow this sum as required. Mr. Mayne stated that the "corner has been turned with regard to the omnibuses." Up to the end of last year, they had been losing, but they were making £100 a week now, and required 22 double-deck omnibuses. An order for 18 bodies has since been given to the English Electric Company.

ACTIVITIES AT MESSRS. STRACHAN'S WORKS.

A representative of this journal was recently given an opportunity of inspecting the new Manchester omnibuses at the Strachan Works at Acton, where a large number of omnibuses and coaches were in various stages of construction. These represented a wide variety of types ranging from the standard service omnibus to the most luxurious saloon coach. A number of the latter are being built for service in connection with air liners, and in design, upholstery, and finish they leave little to be desired. Amongst the orders going through the works are a large number of omnibuses for the National Omnibus and Transport Company, several fleets of Corporation omnibuses, and a number of all-steel vans for the Indian Government. The steel vans are of a somewhat novel type. Mounted on Thornycroft short-wheel base six-wheel chassis, they are intended for use with the Indian motor services as repair and stores vehicles. These vans are fitted with steel bins to carry all the spare parts likely to be required to maintain a fleet in service.

ROAD VEHICLE TAXATION CONFERENCE.

The Conference of Motor Organisations, in a memorandum forwarded on March 11 to the Chancellor of the Exchequer on motor taxation, urges that excessive taxation on road transport prevails in this country. An analysis of motor taxation and its application to the roads, it is stated, showed that during 1928-29 only 40 per cent. of the total proceeds of motor taxation for that year was expended in Road Fund grants, and only 15 per cent. was paid out in road improvement grants of an important nature as distinct from grants for maintenance and repair.

The Conference recommend a 33⅓ per cent. reduction on all classes of motor vehicle taxation, a more flexible system of short-term licences to induce all-the-year-round use of vehicles, and a continuous policy of road and bridge widening and development to be financed by the capitalisation of a portion of the Road Fund revenue.

The average tax paid in 1928 by motor vehicles in Britain was £28, in America £5 3s., in France £16 7s., and in Germany £13 9s.

Digitized by Google

OMNIBUS AND COACH SECTION

A RECORD ORDER FOR SIX-WHEELERS.

SIXTY-ONE THORNYCROFT OMNIBUS CHASSIS FOR LIVERPOOL.

John I. Thornycroft & Co., Ltd., of Smith Square, London, S.W.1, have received what is believed to be the record order for six-cylinder rigid six-wheel omnibus chassis. During last year the Liverpool Corporation Tramways Department obtained one of these machines and subjected it to a prolonged test of some thousands of miles for several months over the department's omnibus routes.

This test was followed by two orders of ten each of this chassis. The further experience thus gained resulted a few days ago in Messrs. Thornycroft receiving an order for a further forty of type FC six-cylinder rigid six-wheel omnibus chassis. Mounted on balloon tyres and having the load sprung in the shock-absorbing manner shown in the illustration, the Thornycroft six-wheeler is evidently proving an outstanding success for public passenger transport in the Merseyside city.

SOME TRANSPORT PROBLEMS.

A REVIEW AND CONCLUSIONS BY MR. R. STUART PILCHER.

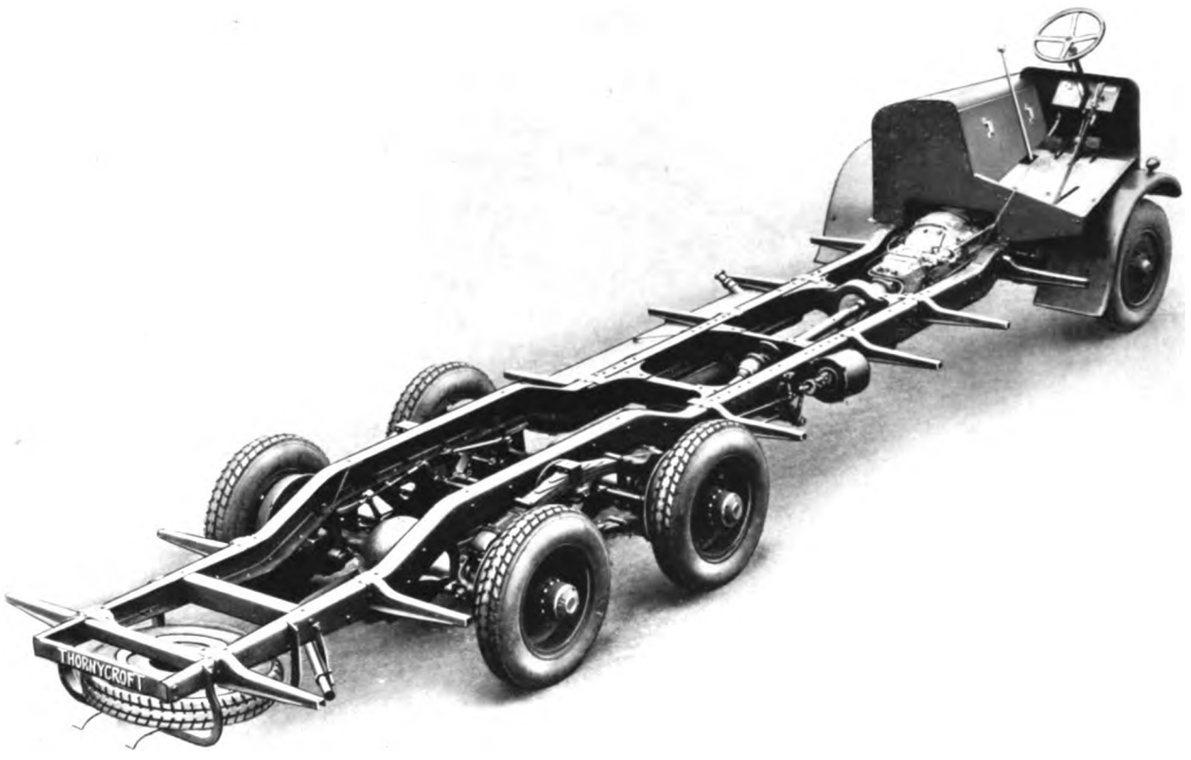
Before the Manchester-Liverpool and District Section of the Institute of Transport, on February 28, Mr. R. Stuart Pilcher, general manager of the Manchester Corporation Transport Department, read a paper entitled "Some Transport Problems." After general references to transport and its changing conditions, the author maintained that transport should be run at a moderately low rate because of its necessity to the community.

Turning to the effect of road motor vehicles on passenger services, he said, in part, that a great many of the smaller towns had abandoned tramways and instituted either trolley or petrol omnibuses. The tramways were obsolete in type and the track worn out, and renewal under such conditions would have been unwise. Some of these public bodies waited too long. They had not visualised the changing conditions and, in consequence, lost both traffic and revenue as well as being seriously inconvenienced.

MORE CHANGES PREDICTED—THE PUBLIC "FANCY."

These changes would affect tramway undertakings still more in the future. A few years ago there were those who thought that omnibuses would never take the place of tramways, but it was now recognised by all the great operating authorities, both municipal and company, that the less efficient tramways would require to give way to the more mobile vehicle. Most of the tramway undertakings had now a fleet of motor omnibuses, and it was found that it was more suitable to operate all extensions by omnibuses, which could be used to develop cross routes, and could be run on streets too narrow for cars and under bridges too low for double-deck cars. Where the two types of vehicles were used, it was found that on many routes, such as those with single tracks and loops, omnibuses were more efficient and convenient.

The chief advantage of the tram had been its low operating costs per mile as compared with the omnibus, and the fact that the tramcar on most systems was capable of carrying more passengers.



One of Liverpool Corporation's 61 Thornycroft six-cylinder six-wheel Omnibus Chassis.

APPOINTMENTS UNDER THE ROAD TRAFFIC BILL.

In the House of Commons on February 25, Mr. Morrison, the Minister of Transport, said he had not yet come to definite conclusions as to the type of persons who would be appointed as traffic commissioners, certifying and examining officers under the Road Traffic Bill. What he was concerned about was that they should answer certain characteristics. The chairman of the commissioners should have business ability, administrative sense, impartiality, be able to weigh evidence, and have a good sense of fairness and justice between one party and another.

The Ministry of Transport has received a deputation from the Institution of Automobile Engineers in reference to the appointment of certifying officers under the Bill. The deputation urged that such officers should have qualifications at least equal to those required for associates of the Institution. Mr. H. H. Piggott, deputy-secretary, assured the deputation that the posts would be advertised to admit of members sending in applications.

Digitized by Google

OMNIBUS AND COACH SECTION

These were very important factors, but quite recently the operating costs of the omnibus had appreciably been reduced, until at present the costs per mile were very similar, but there was still an appreciable advantage held by the tramcar in seating capacity and carrying capacity at rush periods, but even here the omnibus was gaining on the car. The seating capacity of the average car was being reduced in order to provide seats as comfortable as those in the omnibus. The omnibus was now seating nearly as many passengers as the car, and in the six-wheel omnibus the seating capacity might be said to equal it. It was clear, therefore, that if the omnibus and the railless vehicle developed at their present rate, and the design of the car was not improved, the latter would be superseded by the former.

It was an extraordinary fact that even with higher fares the omnibus would take passengers from the tramcar operating on the same route. The public seem to have taken a fancy to the omnibus.

ATTITUDE OF THE PUBLIC.

The author had had experience with the running of express omnibus services, where the charges were 50 per cent. more than the cars, and there was a distinct desire and preference shown to ride on the omnibuses. In transport work it was necessary to study this public attitude; it was a question of psychology. There might be little reason for it, and there might be no logical reason for the preference, but if it was there one had to recognise it and provide for it.

It was frequently argued that omnibuses would never supersede tramways, and it was pointed out that in order to carry the same number of passengers so many more omnibuses would have to be provided to give the same number of seats. This argument was sound up to a point, and only held good for a limited period—the rush period. The extra working expenses should only be estimated for that limited period. Allowance was seldom given to the omnibus for higher schedule speed which could be obtained with the latest type of omnibuses. For garage accommodation, car sheds—as a rule—could be adapted with little extra expense for the use of omnibuses.

Although this might appear to be arguing in favour of the omnibus in certain directions, there was little doubt that the tramcar was the more economical vehicle where the greater seating capacity was given by the car, but he would emphasise that the advantage was but slight, and might at any time pass in favour of the omnibus.

Mr. Pilcher went on to refer in detail to the advantages and disadvantages of the trolley omnibus and the motor omnibus, and affirmed that in considering these matters the local circumstances must be taken into account. He also submitted a table giving the financial results in the case of fifteen local authorities operating both petrol and trolley omnibuses. Most omnibus enterprises, he said, had grown from small beginnings, and their fleets in the early stages had consisted of numerous types, but an undertaking with many different types of chassis in use could never be such a success as an undertaking in which standardisation had been followed. Miscellaneous types were apt to make complications in every department—from the point of view of the driver, the repairer, and the storekeeper—in addition to being difficult and expensive to operate. He also described the express omnibus services operated by Manchester and the adjoining local authorities for twenty miles in all directions. These services were fulfilling a public want, because it was clear that people would pay higher fares in order to travel more quickly. The saving in time over considerable distances was very great and there was a steady demand for increased facilities of this nature.

RETENTION OF TRAMWAYS IN LARGE CITIES.

In the large cities, where millions of capital had been sunk, and where the tramways were being operated on remunerative lines and at cheaper fares than were possible with omnibuses, the question of abandonment would depend upon the progress of the omnibus in relation to the cost of operation and the seating capacity of the vehicles. The progress of the omnibus had, however, urged tramway authorities to improve their undertakings.

If tramways improvements continued, they would prolong the economic life of the tramway car and defer indefinitely its abandonment in large cities. Some of these improvements were better lighting and transverse upholstered seats, which made the cars more popular and definitely increased the revenue. Cars were being run at higher maximum speeds, due to new motors or new gears being introduced giving a speed up to 30 M.P.H. on the level. The higher speed made the car a more formidable rival of the omnibus and reduced the cost of operation per mile run. Cheaper fares were being introduced for long distances. This was not profitable for an omnibus with restricted accommodation, but with tramcars to seat 60 to 80 persons it was possible to carry passengers long distances at cheap rates and on a remunerative basis.

Investigation into modern methods of repair and maintenance of cars and permanent way with a view to reducing costs of operation, modern cleaning methods and the introduction of machinery to do work formerly done by manual labour, all had the effect of improving efficiency and reducing costs of operation. However, the future of road transport was not clear, and those whose business it was to control such organisations must be prepared to go the way of the greatest efficiency and, if necessary, sacrifice capital sunk if it meant greater efficiency in the end.

SOME RECENT ORDERS.

ROCHDALE CORPORATION has purchased a lorry by Dennis Bros.

BEXHILL CORPORATION has ordered a fire engine from Dennis Bros., Ltd.

GUY MOTORS, LTD., have supplied two chassis to Middlesbrough Tramways at £533 each.

SIDDALL & HILTON, LTD., are supplying 15 sets of upholstered omnibus seats to Manchester Corporation.

THE EQUIPMENT AND ENGINEERING CO., LTD., has received an order from York Corporation for an omnibus hoist.

HALLEY MOTORS, LTD., of Glasgow, have an order from Manchester Corporation for two motor tipping wagons.

TODMORDEN CORPORATION has ordered an "Eqwhipple" engine starter from the Equipment and Engineering Co., Ltd.

THE EAST SURREY TRACTION CO., LTD., has ordered power petrolling plant from the Equipment and Engineering Co., Ltd.

LONDON COUNTY COUNCIL FIRE BRIGADE has purchased two fire engines by Dennis Bros., Ltd., and two instructional tenders.

CROSSLEY MOTORS, LTD., have supplied three "Eagle" 32-seat chassis to York Corporation. The bodies are by C. H. Roe, Ltd.

ARCOS, LTD., has placed an order for an "Eqwhipple" engine starter for Moscow with the Equipment and Engineering Co., Ltd.

BOLTON TRAMWAYS COMMITTEE has decided to purchase five double-deck omnibuses of the "Titan" type from Leyland Motors.

HONG KONG TRAMWAYS have purchased an H.8 "Luchard" high-pressure air compressor for tyre inflation from the Equipment and Engineering Co., Ltd.

BOURNEMOUTH TRAMWAYS COMMITTEE has accepted the tender by John I. Thornycroft & Co., Ltd., of £16,740, for twelve 32-seat low-loading omnibuses, after trials of various vehicles.

MANCHESTER CORPORATION TRANSPORT has placed an order for a "Cyclone" washing plant with the Equipment and Engineering Co., Ltd. This is the eleventh "Cyclone" plant installed.

COVENTRY CORPORATION has placed an order with Maudslay Motor Co., Ltd., for four double-deck covered-top 60-seat omnibuses, with bodies by the Brush Electrical Engineering Company.

THE BRUSH ELECTRICAL ENGINEERING CO., LTD., of Loughborough, has received an order from Newcastle Corporation Transport Department for six double-deck top-covered bodies.

THE ASSOCIATED EQUIPMENT COMPANY has an order for twenty "Regent" double-deck omnibuses from Nottingham Corporation, for twenty-five 4-ton lorries from the L. & N.E.R. Co., and for two six-wheel chassis from Warrington Corporation.

DOUGLAS TRAMWAYS COMMITTEE has accepted the tender of Tilling-Stevens Motors, Ltd., for the supply of seven omnibus chassis at £1,140 each, and the tender of the Northern Counties Motor Engineering Company for seven bodies at £470 each.

OVERSEAS ORDERS lately received by the Associated Equipment Co., Ltd., include the following: Agar, Cross & Co., Ltd., "Regal" single-deck omnibus and thirty 4-ton chassis of the overseas type; Australian branch, fifteen 5-ton and four 4-ton vehicles; Walford Transport, Ltd., 5-ton vehicle.

MANCHESTER TRANSPORT COMMITTEE has recommended the purchase of a further 15 Crossley 38-110 H.P. "Sixes." This is the fourth repeat order received by Crossley Motors, Ltd., and makes a total of almost a hundred Crossley omnibuses for Manchester. These are mostly their latest type six-cylinder models for passenger transport, and comprise both single and double-deckers.

VULCAN MOTOR AND ENGINEERING CO. (1906), LTD., has an order from the Hong Kong and Shanghai Hotels, Ltd., for a fleet of "Duke" 20-seater omnibuses. The company has received a repeat order from the War Office for a fleet of vans on the 30-cwt.

Digitized by Google

OMNIBUS AND COACH SECTION

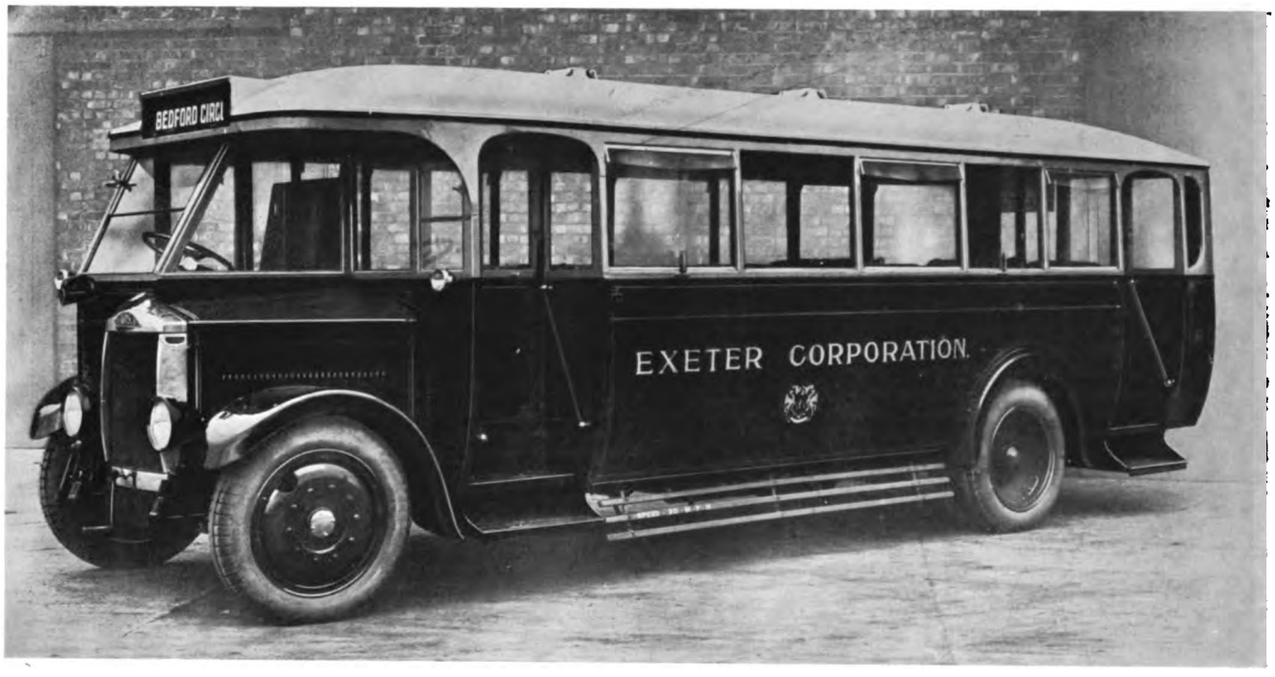
four-wheel chassis. Other orders include fifteen single-deck bodies for Manchester Corporation and a fleet of complete double-deck omnibuses for Southport Corporation.

CROSSLEY MOTORS, LTD., have received an order from the Crown Agents for the Colonies for four 20–60 H.P. Crossley light six-wheelers. The vehicles are for use in Kenya, and form the beginning of the mechanisation of the King's African Rifles. Trailers are being supplied with special tanks for carrying fuel and water. A third repeat order from the Race Course Betting Control Board is for eleven 30–70 H.P. 4-cylinder, 6-wheel vehicles for transporting the electrical equipment in connection with the totalisator.

BRISTOL TRAMWAYS AND CARRIAGE CO., LTD., have received the following orders for Bristol vehicles: Shell-Mex, Ltd., four 40-H.P. 4-ton goods chassis; Aberdare Council Tramways, one 32-seat superbus (one man operated) on a 4-wheel passenger chassis; Newcastle (Staffs) Motor Co., Ltd., one 4-wheel passenger chassis; Rotherham Corporation, two 4-wheel passenger chassis; British Petroleum Co., Ltd., twenty 40-H.P. 4-ton goods chassis. Each of these is a repeat order.

" Davidson " patent double-deck omnibus bodies with twin enclosed staircases, for Leyland Motors, Ltd., to the order of Wallasey Tramways Committee; and three similar bodies to the order of the Daimler Motors, Ltd., also for Wallasey Tramways.

THE ENGLISH ELECTRIC CO., LTD., has received three further orders for their electric trolley omnibuses. Pontypridd Council has ordered seven single-deck vehicles mounted on 3-axle type chassis; each omnibus to seat 32. The equipment will consist of a DK.121 60-H.P. motor fitted with roller bearings, and " English Electric " contactor type foot-operated controller. For Southend Corporation the order comprises two double-deck top-covered trolley omnibuses mounted on 3-axle type chassis, with air brakes operating on all wheels. Each vehicle will seat 59. A feature of the body is the provision of an extra exit on the near front side, thereby facilitating unloading during rush periods. A further notable feature is the low-loading platform, whereby passengers may enter direct without any step arrangement. The equipment will consist of a DK.122 twin type 80-H.P. motor fitted with roller bearings and contactor type foot-operated controller. From



Maudslay 32-Seat Low Level Single-Deck Omnibus—Exeter Corporation.

ALBION MOTOR CAR CO., LTD., has an order for thirty 4-ton vehicles from the Anglo-Persian Oil Co., Ltd. This follows an order from the same company for 2½-ton and 3-ton vehicles for use in the oilfields in Persia. J. Lyons & Co., the caterers, have given a repeat order for eight 3-ton vans, making a total of eighty Albions in their fleet. Grimsby Tramways Committee has ordered two omnibus chassis at £718 each, for which Charles H. Roe, Ltd., are supplying bodies. A tower wagon is being supplied to Glasgow.

NORTHAMPTON TRAMWAYS COMMITTEE has recommended the acceptance of the following tenders: Guy Motors, Ltd., for six six-wheel chassis for 50-seat omnibuses at £1,375, and three 26-seat four-wheel bodies at £1,350 each; Associated Equipment Co., Ltd., for one six-wheel chassis for a 50-seat body at £1,155; Grose, Ltd., for seven omnibus bodies at £795 each; Vulcan Motor and Engineering Co., Ltd., for two 26-seat single-deck four-wheel omnibuses at £1,285, and three 26-seat single-deck bodies at £400 each; John I. Thornycroft & Co., Ltd., for three 26-seat single-deck four-wheel omnibus chassis at £860 each.

MESSRS. EASTWOOD & KENNING, who recently purchased the business of Davidson (Trafford Park), Ltd., have received a repeat order from the Lancashire United Transport and Power Company for eight single-deck omnibus bodies on Leyland " Lion " chassis. Other orders include four 32-seat single-deck omnibuses on Tilling-Stevens B.10A.2 chassis for Caerphilly Urban Council; three Christchurch, New Zealand, the company has an order for six complete 3-axle trolley omnibus chassis and equipments.

A.E.C.–" ENGLISH ELECTRIC " TROLLEY OMNIBUSES.—The Associated Equipment Co., Ltd., and the English Electric Co., Ltd., have arranged to collaborate in putting on the market a line of single-motor, low-loading trolley omnibuses. These vehicles will have as their basis the A.E.C. " Regal," " Regent " (4-wheel) and " Renown " (6-wheel) chassis. The vehicles will include single and double-deck types with the following wheelbases and seating capacities: Model 661T 50–52-seat double-deck (4-wheel), 15 ft. 6½ in. wheelbase; Model 662T 30–34-seat single-deck (6-wheel), 17 ft; Model 663T 60-seat double-deck (6-wheel), 16 ft. 6 in. The last mentioned model can be supplied with a wheelbase of 18 ft. 7 in. In these new vehicles the A.E.C. will manufacture the chassis and components. The electrical equipment and the omnibus bodies will be by the English Electric Co.

WIND-SCREEN WIPERS.—Leeds Watch Committee has been informed that the Minister of Transport does not consider it desirable to make a regulation that motor vehicles shall be equipped with automatic wind-screen wipers. The Committee has decided, however, that public vehicles licensed in Leeds shall be equipped with such wipers.

Digitized by Google

OMNIBUS AND COACH SECTION

OMNIBUS AND COACH SERVICES.

MUNICIPAL.

DEPOT EXTENSION AT EASTBOURNE.—Land is being purchased for £2,077 in order to extend the Corporation omnibus depot.

EXTENSION OF ROUTES AT DERBY.—The Tramways department is planning a considerable extension of the omnibus routes, for which the Council already have powers.

LATE OMNIBUS FARES AT BOURNEMOUTH.—The minimum fare per passenger on the late omnibuses of the Bournemouth Corporation Tramways (from twelve midnight) will be 6d.

OMNIBUSES FOR ASHTON-UNDER-LYNE.—The Tramways Committee has applied to the Ministry of Transport for sanction to borrow £10,000 for the purchase of omnibuses.

GELLYGAER REORGANISATION.—A committee has been appointed to submit proposals for the reorganisation of the Council omnibuses undertaking, including the acquisition of new omnibuses.

OMNIBUS PROPOSAL FOR SOUTHEND.—A suggestion by Mr. Ronald A. Fearnley, the transport manager, for the running of petrol omnibuses has been agreed with, in principle, by Southend Corporation.

LEICESTER OMNIBUS CLAUSES REJECTED.—Clauses in the Corporation Bill which sought to enable the Tramways Department to operate omnibuses outside of the city boundary were heavily defeated as the result of a poll of the ratepayers.

NEW DEPOT AT CARDIFF.—For the erection of an omnibus depot at Sloper Road, the Tramways Committee has accepted a tender at £23,930. There will be accommodation for 138 omnibuses. The equipment and lighting will bring the total outlay to £35,000.

GLASGOW GARAGE EXTENSION.—Although the Larkfield garage of the Corporation Transport Department was opened only last year it is now inadequate. At a cost of £20,000 an extension is to be made. When enlarged the buildings will accommodate nearly two hundred double-deck omnibuses.

THE OUTLOOK IN THE STALYBRIDGE AREA.—A communication from the Stalybridge, Hyde, Mossley, and Dukinfield Tramways and Electricity Board to its constituent authorities, notifies that it will not be necessary to levy a rate at the end of the current year if the authorities continue to refuse to issue further licences.

LONDON TRAMWAYS AND OMNIBUS POWERS.—At a meeting of the Erith Council it was reported that the Metropolitan Municipal Tramways Council had sent a deputation to the Municipal Tramways and Transport Association to press for the inclusion in the Omnibuses Bill of powers for Metropolitan tramway undertakings to run omnibuses.

JOINT SERVICES FROM MANCHESTER.—Licences have been granted by Manchester Watch Committee for the following joint services:—Manchester Corporation and the North-Western Road Car Co. to Knutsford and Warrington; the L.M.S. Railway from Manchester to Sheffield. The latter route has already a limited stop service worked by the L.N.E. Railway.

NEW TYPE OF OMNIBUS.—Members of Glasgow Transport Committee have inspected a new double-deck omnibus, which has a straight stairway leading to the centre of the upper saloon, and a commodious and low-loading platform. The vehicle is similar to those which the London General Omnibus Company is constructing for rush-hour traffic in London, which was described and illustrated in THE TRAMWAY AND RAILWAY WORLD of February 13.

A SOUTH SHIELDS AGREEMENT.—Following the decision of the Ministry of Transport concerning the Cleadon—South Shields route, the Northern General Transport Co., Sunderland District Omnibus Co., and South Shields Corporation have agreed to jointly maintain a 7½-minute service. Tickets are inter-available and at week-ends and holidays the service is increased. A slight increase in the Corporation fares has brought them up to those charged by the companies.

ROOF TORN OFF AN OMNIBUS.—Two passengers were injured and others had narrow escapes on March 3 when a Birmingham omnibus was endeavouring to pass under the railway bridge over Sandy Lane. Half-way under the bridge the vehicle collided with a girder, and the roof was torn off and the windows smashed. It is stated that the omnibus was off the proper route, the driver having taken a wrong turn at a point where a detour had to be made in consequence of road work.

NEW LICENSING REGULATION AT GLASGOW.—On March 1 the new by-law relating to the licensing of stage carriages came into force, as authorised by the Corporation Act, 1929. Licences are now required for all wheeled vehicles used for conveying passengers between any place in the city and any place within or beyond the city. With this by-law the Corporation omnibuses have also to comply. At the beginning of the year there were about four hundred unlicensed omnibuses.

A CHANGE-OVER AT CHESTER.—The Corporation tramway services terminated on February 16, and the Transport Department is now operating six A.E.C. "Regent" double-deck omnibuses and ten single-deck vehicles. The new services outside of the city are between Vicars' Cross and Saltney, Christleton Church and Saltney, and the station and Saughall Road. Alderman H. S. Dutton, chairman of the Transport Committee, drove a single-deck omnibus to Vickers Cross. Among the passengers were the Mayor and Sheriff and members of the Corporation.

CENTRAL STATION FOR MANCHESTER.—The Corporation Transport Committee propose to erect an omnibus station in the centre of the city. At a February meeting of the Committee a provisional estimate was presented for £100,000 to meet the cost of developments of the omnibus undertaking. A report by Mr. Pilcher, general manager, stated that for the nine months ended January 11, the omnibuses ran 3,617,992 miles, that the receipts were £184,815, and the surplus £20,246. Estimates for the ensuing financial year gave an estimated balance of £30,800, after allowing £12,200 for omnibus depreciation.

THE POSITION AT NEWCASTLE.—The City Council has received the report of the Transport Committee on the tramways and motor omnibus undertaking, as published in these columns on February 13. In presenting the report, Alderman R. Mayne, chairman of the Transport Committee, stated that the omnibus services were seriously affected by competition from licensed and unlicensed operators. These services to outside places had, however, a potential value, and if the Council desired to be rid of them they could get a handsome price. Councillor W. Percival, a member of the Committee, said he was prepared to take over the omnibus services and to pay the Corporation 1d. per mile for every mile run. It was due to the illegal running of many owners that the undertaking had lost thousands of pounds per annum. With the Road Traffic Bill in operation the future would be more rosy.

COMPANY.

WESTERN WELSH OMNIBUS COMPANY.—A garage for one hundred omnibuses and new offices are to be built by the Western Welsh Omnibus Co. at Ely, Cardiff.

SIX-WHEELERS IN LONDON.—The London General Omnibus Co. has, during the past four months, added fifty of the LT type of six-wheel omnibuses to its fleet.

CHANGE OF NAME IN LANCASHIRE.—In the report of the Lancashire United Transport and Power Company for 1929, it is stated that the title of the company is to be changed to the South Lancashire Transport Co.

"UNITED AUTOMOBILE" ENTERPRISE AT NEWCASTLE.—At a cost of £40,000 the United Automobile Services, Ltd., are to erect a depot in Jesmond Road, Newcastle-on-Tyne. It will house 140 vehicles and provide northern headquarters for the company.

WELSH INDEPENDENTS COMBINE.—Red and White Services, Ltd., Lydney, have taken over control of, and will form an independent combination with, seven other omnibus undertakings. These concerns operate throughout South Wales and the border counties.

PROPOSED CLEARING HOUSE FOR COACHES.—For the purpose of ensuring full loads, a scheme is under consideration for establishing a central clearing station at Manchester. The movers in the matter are the Transport Owners' Association and the Manchester Division of the C.M.U.A.

COACH STATION FOR LLANDUDNO.—Brierley Bros. have acquired an island site in the centre of the town for the erection of a coach station and garage for cars. Workshops will be provided, and companies using the station may have their bookings attended to by the station staff.

A PLYMOUTH DEVELOPMENT.—The Western National Omnibus Co. has placed a contract for the erection of a garage, offices, workshops and stores at Plymouth. The site is in Laira Bridge Road. There will be a covered parking area of 150 ft. by 250 ft., without obstruction from roof columns, to accommodate over one hundred omnibuses.

EXCESS PASSENGERS PROSECUTED.—Summonses relating to an over-crowded omnibus were heard at Bolton county police court against the driver, conductor, seven passengers and the owners of the vehicle. The company was fined £5, the driver £1, and the

Digitized by Google

OMNIBUS AND COACH SECTION

passengers ordered to pay costs. The summons against the conductor was dismissed.

A Regent Street Booking Office.—On the east side of Regent Street near Oxford Circus the Skylark Motor Coach Co. has opened a booking office for the hourly services from Hertford, High Wycombe, and London to Guildford and Dorking. A waiting room is provided for passengers.

A Question of Spare Licences.—By a majority of one the Hebburn Urban Council refused an application for six licences made by the Northern General Transport Co. for omnibuses owned by the L.N.E.R. The application was objected to on the ground that the Northern Co. had 90 licences and ran only 45 vehicles. The company replied that the reserve vehicles were for emergencies and busy periods.

Medical Examination of Employees.—The London General Omnibus Company has dismissed a number of omnibus drivers and conductors in consequence of the result of a medical examination. The company has issued a statement saying that when the independent companies were taken over, it became necessary for the drivers and the conductors to conform to the required standard of fitness. The men have been granted compensation for the loss of employment.

Big London Coach Station Projects.—A syndicate has purchased for a sum exceeding £60,000 an island site opposite King's Cross Station, with a frontage to Euston Road, for the purpose of erecting a terminal station for coach traffic, and also private garages. The site has an area of over 30,000 sq. ft. and is connected by subway with the King's Cross and Metropolitan stations. It is also proposed to erect, on a similarly convenient site near Victoria Station, another large station. E. H. Stodart & Co. are the architects.

Tyneside Applications.—Licences for twenty omnibuses have been granted to the Tyneside Tramroads Co. by Tynemouth Corporation, the vehicles to take the place of the tramways on the route between North Shields and Newcastle. Other applications for twenty licences each by Newcastle Corporation (from Prudhoe Street to East Howdon), and the L.N.E.R. (from Tynemouth to Newcastle) have been refused. Applications received by Wallsend Corporation for twenty licences by the L.N.E.R. and the Tynemouth Tramroads Co. have been referred to the Regional Committee with a recommendation that licences be granted to the Tramroad Co. and not to the Railway Co.

LONG-DISTANCE.

A North London Terminus.—Greyhound Motors, Ltd., Bristol, have altered their London terminus from Victoria to the Claremont coaching station, 78, Pentonville Road, King's Cross.

London Terminal Station.—A branch booking office at the Victoria end of Vauxhall Bridge Road has been opened in connection with the London Terminal Coach Station, Clapham Road, S.W.9.

New Midland Services.—The Birmingham & Midland Omnibus Co. has started a daily service from Leicester to Cheltenham, and extended the Leicester-Malvern service to Evesham and Hereford.

No Booking Within Ten Miles.—On condition that no passenger shall book between Barnsley and within ten miles of the borough, Barnsley Watch Committee has granted licences to the Yorkshire group of tramway companies for joint omnibus services between Harrogate, Leeds, Bradford, Birmingham and London.

Proposed New Services via Oxford.—Licences have been granted by Oxford Watch Committee to Allchin & Sons, Northampton, for a Nottingham-Bournemouth service. The following applications have been refused:—Merseyside Touring Co., Ltd., Liverpool-London; Thomas Luxury Coaches, Swansea-London; Stratford Blue Motor Services, Stratford-Oxford.

A Southern General Omnibus Company.—H. B. Buses, Ltd., has changed its title to Southern General Omnibus Co., Ltd. Its sphere of operation is from Plymouth to Penzance, and its tickets are available for return journeys on the vehicles of the Western National and Devon General Companies. A Southern "General" service from Plymouth to London is about to be started.

Improvements at a London Station.—Three schemes of improvement now being carried out at the London Coastal Coaches station in Lupus Street, near Vauxhall Bridge, will render the station much more efficient. Hitherto only one vehicle at a time could enter the station and the entrance is now being widened. The surface of the parking space has been paved with tar macadam and well drained. A wide verandah with seats is to encircle the booking offices.

MOTOR TRAFFIC NOTES.

To Render Exhaust Gas Safe.—Dr. J. C. Frazer, of the Chemistry department of the Johns Hopkins University, Baltimore, has patented an invention for eliminating the carbon monoxide in the exhaust of petrol engines.

American Cars in Bonded Warehouses.—Mr. Snowden, replying to a question in the House of Commons, said that the number of motor cars, including complete chassis, consigned from the United States, which were in bonded warehouses in this country on November 12 was 900.

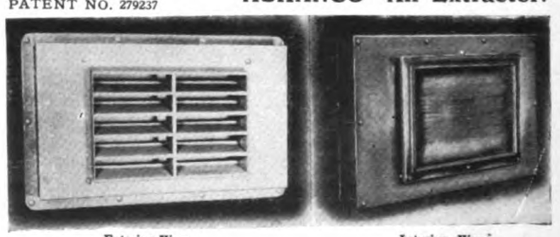
Ministry of Transport and Headlights.—It is announced that the Ministry of Transport has under consideration the question of dazzle arising from too powerful headlights. On this question the Royal Commission on Transport recommended that vehicles should be equipped with apparatus for dipping their headlights, or else swivelling them to the near side of the road.

Traffic Studies at Salford.—At a recent vehicle census outside of the town hall, Salford, during a period of twelve hours, 17,702 conveyances were listed, representing 39,000 tons, exclusive of the loads carried. The view is held by the chief constable that if this weight can be kept moving, compatible with public safety, wear and tear of the road will be lessened. With the idea of diverting traffic from the main roads, routes are being surveyed in secondary streets.

Illumination to Secure Safety.—In consequence of numerous fatalities and accidents to pedestrians in High Street, Lewisham, the Borough Council recently permitted trials to be made of special gas and electric lamps. A special committee reported that the experiment was on too limited a scale for them to give a decision on which method of lighting should be adopted for the whole of the main roads. The companies are therefore to provide one mile of high-pressure gas lamps and one mile of the electric lamps.

Seating Standard for Vehicles.—The allowance of sixteen inches for each passenger, a standard prescribed in an Act 100 years old, was the basis of a summons for overcrowding a motor omnibus brought against a Doncaster Corporation omnibus conductor, who was fined £1 for permitting 49 passengers in an omnibus licensed for 32. It was pointed out on behalf of the Corporation, *The Times* states, that this was the last omnibus by which miners could travel to work, and that had a party who boarded the omnibus at the last minute been turned off, they would have lost a day's work at the colliery.

Traffic Restrictions in Central London.—On February 17 the London Traffic (Waiting, Loading and Unloading of Vehicles) Regulations came into force in the area comprising Piccadilly Circus, Marble Arch, and St. Giles' Circus. Between certain hours vehicles (including motor cars) may not wait in any street for a longer time than is necessary for persons to board or to alight. Loading and unloading of goods must not be effected except where those operations can be conveniently undertaken in a side street. Where the loading or unloading must take place in the area, a vehicle is not to stand for more than 15 minutes.

THE "Ashanco"
PATENT NO. 279237
Air Intake Ventilator for use in conjunction with the "ASHANCO" Air Extractor.

Exterior View. Interior View.
Specially designed to permit an ample volume of fresh air entering the interior from the front end of the 'Bus at low velocity, thus preventing draughts. Actual tests have shown that at even the maximum speed permissible the air entering the interior from this new Intake is but three to four miles per hour, and this volume is capable of changing the air in the interior every three to four minutes, with the addition of four side type Extractors provided for the purpose drawing off the foul air from the interior.
George Johnston, Ltd., 173/5/7, Shaftesbury Avenue, London, W.C.2.
Telephones:—TEMPLE BAR 1803/4/5. Telegrams:—Slapjack, London.

Digitized by Google

THE
Tramway AND Railway World
FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.
Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates—
FOR THE UNITED KINGDOM—Twenty-five shillings per annum.
FOR ALL PLACES ABROAD—Twenty-five shillings per annum. Postage to Canada, 6s.; to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS

LONDON, MARCH 15, 1930.

TRAFFIC NOISES.

In view of the difficulty of carrying into effect the Motor Cars (Excessive Noises) Regulations, it cannot be said the police are lax in the discharge of their duty. The regulations came into force on August 1, 1929, and up to December 31 last there were 1,282 prosecutions. The number of convictions is not stated in the return presented to the House of Commons, but as the police take action only in flagrant instances we may assume that the failures were not numerous. The issue of the regulations was the result of recommendations drawn up by a conference convened by the Minister of Transport in October, 1928, and it is of interest to note that the conference also advised the Ministry of Transport to investigate the extent to which noises from horse-drawn vehicles, tramcars, and heavy locomotives can be brought within regulations. Thus far, there has been no response from the Ministry, which is not surprising in the case of the second mentioned vehicle. Although it would be difficult to prescribe standards of noise for tramcars, that fact does not absolve tramway operators from maintaining cars and tracks in the best possible condition. Manchester may be pointed to as a place where great attention is being devoted to lessening tramway noises. In a report which Mr. Stuart Pilcher, the general manager, has prepared, he states that noises appear to come chiefly from the bogies of a car. The causes he sets down as follows: Corrugations on rails, worn crossings and junctions, rattling chains on bogies, chattering brake blocks, loose motor-case lids and gear-case lids, motor suspension springs loose, howling gears, and jazzing of cars when at high speeds. Mr. Pilcher relates in detail the steps he is taking to remedy the defects. Some of the measures may be briefly referred to. Special attention is being given to grinding out corrugations by means of special cars fitted with carborundum blocks. Worn crossings and points are being built up by depositing steel by means of welding plants. In this connection, Mr. Pilcher does not mention the subject of welded rail joints, one of the most effective means of eliminating noise. To remedy the chattering caused by the brake blocks climbing on the wheels, a new type of brake block which will reduce the climbing effect is being fitted. A new form of hand brake is being used, comprising ferodo blocks pressing against steel discs fitted on to the axles. The braking appears to be easier, the maintenance lower, chattering and other noises being absent. The older types of gears on the motors used to wear quickly, and were very noisy. With modern gears, if properly looked after, there should be no appreciable wear, the general manager says, and, therefore, no noise. The jazzing of single truck cars has been substantially reduced by fitting new and wider check plates in the axle boxes, and with proper supervision there should be no serious recurrence of this defect. Jazzing, Mr. Pilcher adds, has the effect of loosening the equipment, which in turn causes noise.

"ENGLISH ELECTRIC" AUTOMATIC SUB-STATIONS.

DEMONSTRATION OF COMPLETE ELECTRIC RAILWAY SUB-STATION EQUIPMENT.

At the invitation of the English Electric Company, Ltd., a number of engineers and representatives of the technical journals witnessed, at the company's Stafford works on Wednesday last, a demonstration of the complete automatic sub-station equipment intended for services on the Ise Electric Railway of Japan.

Although the limitations of the test bed supply did not permit the entire reproduction of service conditions, the demonstration was of exceptional interest. It served to show the remarkable ease and efficiency of the "English Electric" system of remote or entirely automatic control of a sub-station. The equipment demonstrated represented one of the three sub-stations which the "English Electric" are manufacturing. The capacity of each is 4,000 kw., and the D.C. voltage is 1,500 volts. Each equipment consists of four 1,000 kw. 750-volt rotary converters working in series pairs for 1,500 volts. The E.H.T. supply to the sub-station is 3-phase, 60 cycles, 11,000 volts.

The demonstration consisted of a comprehensive series of tests conducted from a desk type control board, which is so arranged that after making the supply available, the first unit, consisting of two machines, can receive its starting impulse either from a time switch or from a "start" push button. By means of an overload relay or by the operation of the machine thermostat, the second unit is brought into operation automatically by a prolonged overload on the first unit.

All these operations were shown, both in the starting up and closing down of the sets by each method, as well as the operation of the protective equipment, which is arranged to cover all possible faults. An interesting feature of this auxiliary equipment is that provision is made so that in the event of the first unit failing to respond to its starting impulse, the second unit will automatically take its place after a moment's delay.

ROAD VEHICLE TAXATION CONFERENCE.

The Conference of Motor Organisations, in a memorandum forwarded on March 11 to the Chancellor of the Exchequer on motor taxation, urges that excessive taxation on road transport prevails in this country. An analysis of motor taxation and its application to the roads, it is stated, showed that during 1928-29 only 46 per cent. of the total proceeds of motor taxation for that year was expended in Road Fund grants, and only 15 per cent. was paid out in road improvement grants of an important nature as distinct from grants for maintenance and repair.

The Conference recommend a 33⅓ per cent. reduction on all classes of motor vehicle taxation, a more flexible system of short-term licences to induce all-the-year round use of vehicles, and a continuous policy of road and bridge widening and development to be financed by the capitalisation of a portion of the Road Fund revenue.

The average tax paid in 1928 by each motor vehicle in Britain was £28, in America £5 3s., in France £16 7s., and in Germany £13 9s.

THE ROAD TRAFFIC BILL.

The Standing Committee of the House of Commons which is considering the Road Traffic Bill met on Tuesday. By 36 votes to eight the Committee rejected an amendment to Clause 5 to require an applicant for a driving licence to pass an oral examination on the rules of the road. Dr. Salter moved an amendment to require an applicant to produce a certificate in the prescribed form showing that he had satisfactorily passed an eyesight test as to visibility and colour. This was defeated by 44 votes to four. An amendment proposed by Mr. Hall Caine required applicants to satisfy the licensing authority of their competency to drive with reasonable skill and of their knowledge of the rules of the road. This amendment was lost by 36 votes to ten, and Clause 5 was then agreed; it requires an applicant to make a declaration as to physical fitness. The Ministry of Transport opposed all the amendments and pointed out that the person who made a false declaration would be liable to a fine of £50, or six months' imprisonment, or both.

Digitized by Google

L.C.C. TRAMWAY MATTERS.

RESEARCH ROLLING STOCK ENGINEER TO BE APPOINTED.

In reporting to the London County Council in regard to the position of a rolling stock engineer, the Highways Committee said that improvements which had taken place and are still in progress in connection with rolling stock for street passenger transport service made it essential that the Council should keep in the closest touch with such developments. There was also a need for ensuring that those parts of the tramcar equipment which are peculiar to the conduit system are of such a kind that the possibility of breakdown is reduced to a minimum. As there is no other conduit system of tramways in this country, the Council has to depend upon its own officers for improved designs in this particular respect. The Council has on order 150 new tramcars, and has provisionally agreed to the purchase of a further 150 at a total cost of about £843,000.

These facts, the Committee added, made it desirable that the Tramways Department should have a sufficient staff of skilled engineers to maintain the degree of efficiency that is necessary to secure commercial success. After careful consideration, the Committee had decided that a position of system rolling stock engineer should be created, primarily for the purpose of research, but with joint authority to supervise the work of the rolling stock branch of the Tramways Department, under the rolling stock engineer. About 3,000 men are employed at the Central Repair Depot and in the car sheds. The Committee considered that the salary offered should be such as would attract suitable candidates, and they suggested a salary of £1,000—£50—£1,200 a year, and proposed to invite applications by advertisement. The proposed salary compares with the scale of £1,500—£1,700 a year for rolling stock engineer.

The Council adopted the proposal.

MISCELLANEOUS NEWS AND NOTES.

Reduction in Fares Refused.—Sheffield City Council declined, by a large majority, on March 5, to consider a proposal to extend penny fare stages.

Birkenhead Tramway Depot.—Birkenhead Tramways Committee is considering the question of reconstructing the tramway depot at New Ferry. The estimated cost is £16,000.

A Bradford Trolley Omnibus Route.—Bradford Corporation has received sanction to borrow £15,580 for the substitution of a trolley omnibus system for the tramway service from Five Lane Ends to Idle.

The Charge for Power at Bolton.—A deputation from the Tramways Committee has waited upon the Bolton Electricity Committee to press for a reduction in the price of electric energy supplied to the tramways.

Doncaster Corporation has applied to the Unemployment Grants Committee for a grant in respect of the removal of the tramways on various routes on which the service has been abandoned, and the roadway reinstated.

A Further Lease for the M.E.T.—Middlesex County Council on March 6 agreed to lease their tramways to the Metropolitan Electric Tramways, Ltd., for a further period of forty-two years, from 1930, at a rent of £72,000 a year.

Substitution of Omnibuses for Tramcars.—Tyneside Tramways Company has intimated to Wallsend Corporation their intention of substituting omnibuses for tramcars over their Wallsend to Gosforth route from April 4 onwards.

Rawtenstall-Accrington Conference.—On May 1, instead of on April 1, as formerly arranged, a conference will be held between Rawtenstall and Accrington Corporations to consider substituting omnibuses for the municipal tramways.

Improvements on Nottingham Tramcars.—It has been decided by the Transport Committee to install upholstered transverse seats in the lower saloons of the forty-five latest tramcars, the floors of which are to be covered with linoleum.

Ossett Corporation has decided in favour of trolley omnibuses in place of existing tramways, and the Highways Committee is communicating with the National Electric Construction Co., Ltd., and Dewsbury Corporation in regard to the matter.

Manchester Watch Committee has granted the application of the L.M.S. and L.N.E. Railway Companies for the transfer to them of licences previously granted to the Underwood Express Services, Ltd., subject to the services running on the same lines as hitherto.

Bradford Tramways Committee recommends that an additional "curve" be constructed from Horton Park-avenue to Great Horton-road, at an estimated cost of £1,471, and that a negative traction feeder be provided along the Thornton tramway route at an estimated cost of £2,141.

Salford Non-Union Tramwaymen.—Salford Tramways Committee has decided to co-operate with the union employees, who demand that non-unionists should join up. The Committee has directed that notices be posted in the depot urging the necessity of all employees working in harmony.

A Stopping-Place Indicator.—Mr. J. Whitfield, of West George-street, Glasgow, is the inventor of an electrical apparatus which automatically indicates each stopping place to passengers in a tramcar. The apparatus is actuated as the trolley of the car engages with contacts on the conductor wires, and flashes the name of the next stopping place on an illuminated banner fixed at each end of the car. Warning of a stage point is given about 30 yards from the stop, while the name of the next stage point is indicated.

Preston and Trolley Omnibuses.—A report as to the cost of installing a trolley omnibus system is to be prepared by the general manager of Preston Corporation Tramways.

Motor Coaches on Rails.—The L.M.S. Railway is experimenting with motor coaches fitted with wheels to run on the rails. These wheels will be detachable, so that by replacing the pneumatic-tyred wheels the vehicle can take to the road. The idea was tried in several countries prior to the war.

Proposed Tramway Abandonment at Motherwell.—At a meeting of Motherwell and Wishaw Town Council on March 4, the town clerk read a letter from the Tramways Company, which stated that they intended to apply for an order to abandon the tramways. The Council agreed to appoint representatives to meet the company.

Reconditioning of Glasgow Cars.—Glasgow Transport Committee is considering a programme for the reconditioning of 300 additional tramcars. When these have been completed, the city will have a total of 800 modern vehicles. It is expected that the reconditioning work will keep the men at the Koplaw Hill Depot employed for another year.

Speeding up Newcastle Tramcars.—By elimination of a number of compulsory stopping places, Newcastle Tramways Committee is making an effort to further increase the average speed of tramcars. Last year the average speed over all the routes increased from 7.66 to 8.36 miles per hour, but it is contended that the public are slow in the boarding of cars.

A Rotherham-Chesterfield Service.—Rotherham Transport Committee has received from the town clerk a report upon the position with regard to the proposed establishment of an omnibus route between Rotherham and Chesterfield. The Committee authorised him to continue his negotiations with the L.N.E.R. and L.M.S.R. for a through-running of motor omnibuses between the two towns.

Is Free Travel for Councillors Illegal?—Salford Council has approved a recommendation from the Tramways Committee that free passes on municipal vehicles should be granted to members, in view of the additional work imposed on them under the new Local Government Act. The town clerk said he was aware the concession had been made by other local authorities, but it was illegal.

The Position of Cork Tramways.—At a meeting of Cork Corporation on March 11, a member said it had been stated that the Tramways Co. had suggested an omnibus service in place of the tramways. The city manager said he had no information to offer. Mr. Barry: How do we stand about handing over the poles, etc.? The Lord Mayor: We have sought counsel's advice on that. The Council postponed action until counsel's advice is available.

Dudley-Stourbridge Tramway Route.—With the cessation, on March 8, of the tramcar service between Dudley and Stourbridge, five tramway systems operating in the borough of Dudley, or connecting it with outlying districts, have permanently disappeared. Only two of the original seven tramways serving Dudley remain, namely, those operating between the borough boundary at the station bridge and Birmingham, via West Bromwich and Oldbury respectively.

Middlesbrough-Stockton Agreement.—At a meeting of Middlesbrough Corporation on March 11, confirmation was given to an agreement with Stockton Council whereby the tramways from North Ormesby to Norton will cease to be operated two years hence. The arrangement empowers Stockton to run omnibuses into Middlesbrough and vice versa, Middlesbrough also having authority to run omnibuses along the north bank to link up with the Transporter bridge.

Nottingham Transport Committee has refused further cheap ticket facilities for children attending secondary schools, central schools and certain private schools. In replying to the deputation representing Nottingham City and Nottingham County Council, who put forward the request, Alderman A. Turney, chairman of the Transport Committee, stated that the concessions already granted to schoolchildren represented a loss on revenue of many thousands of pounds per annum.

Transport Fatalities at Glasgow.—At a meeting of the Glasgow Town Council, the town clerk stated that during the last twelve months the number of fatal accidents in the city were: On railways 11, on tramways 14, and on omnibuses 68. Mr. Dolland, convenor of the Transport Committee, suggested that the town clerk should bring the figures before the Magistrates' Committee for consideration, in view of the fact that about ten times more passengers were carried on the tramcars than on the omnibuses and trains combined. The figures showed that the omnibuses were more dangerous, and the public should recognise that tramcars were safer and more comfortable.

Settlement of the Hull Dispute.—Settlement has been reached in the dispute between Hull Corporation and 115 of their tramway employees, who were engaged as volunteers during the general strike in 1926. The Transport Committee, it will be remembered, had given notice to terminate the engagement of the men, and, acting on legal advice, the employees applied to the High Court for an injunction. Lady Houston undertook to pay the costs of the High Court action. Negotiations have since taken place between the Transport and General Workers' Union and the Tramways Committee, and the proposals for settlement were unanimously accepted by the City Council on March 6. These proposals provided for the transfer of five supervisors to other positions in the Corporation's service, and the employment of thirteen motormen as conductors. For purposes of seniority, the remainder of the men will be deemed to have joined the service on December 19, 1926.

Digitized by Google

Result of Increased Workmen's Fare.—Nine weeks' experience of the increased fare for workmen on the Oldham Corporation Tramways has brought a decrease of 138,507 passengers and £256 in receipts. A sub-committee of the Tramways Committee has been appointed to consider the position and to report. It was stated that there were increases on two routes which were not served by the railway company, and a member of the Committee suggested that elsewhere the people were travelling by train.

Tramcar Building and Unemployment Grants.—In the House of Commons on March 1, Mr. J. Arnott (Hull) asked the Lord Privy Seal if he was aware that the Unemployment Grants Committee declined to accede to the application of Leeds Corporation for a grant towards the cost of expediting the construction of 150 tramcars, giving as one reason for so deciding the absence of acute unemployment in the industry; that inquiries had shown that unemployment was exceptionally acute in this industry. Mr. Thomas said he was discussing the matter further with the Minister of Transport.

Cardiff Municipal Transport.—Councillor Henry Johns, chairman of the Cardiff Tramways Committee, in an address to a ratepayers' association, said that the total contribution from the Cardiff road transport services during the past five years in aid of the rates was £170,639, equal to 2s. in the pound. The Corporation now operated 142 cars, the passengers totalled more than 40,000,000, and the revenue exceeded £252,000. Though there was a decrease in earnings the gross profit increased by £6,558, and amounted to £65,685, in the year ending March, 1929. Referring to the Cathays omnibus route, he said that in a week's operation with ten omnibuses in place of thirteen tramcars, the mileage had increased by 27 per cent., the passengers by 22 per cent., and the revenue by 29 per cent.

A.E.C.—"English Electric" Trolley Omnibuses.—The Associated Equipment Co., Ltd., and the English Electric Co., Ltd., have collaborated to place on the market a line of single-motor low-loading trolley omnibuses. These vehicles, which will shortly be put on test, will have as their basis the A.E.C. "Regal," "Regent" (4-wheel) and "Renown" (6-wheel) chassis. The vehicles will include single and double-deck types with the following wheelbases and seating capacities: Model 661T, 50-52 seat double-deck (4-wheel), 15 ft. 6½ ins. wheelbase; Model 662T, 30-34 seat single-deck (4-wheel), 17 ft. wheelbase; Model 663T, 60 seat double-deck (6-wheel), 16 ft. 6 ins. wheelbase. The last-mentioned model can be supplied with a wheelbase of 18 ft. 7 ins. The Associated Equipment Co. will manufacture the chassis and components. The electrical equipment and the bodies will be made by the English Electric Company.

Newport Corporation Bill.—A Select Committee of the House of Commons, on March 7, approved the preamble of a Bill promoted by Newport Corporation, which sought powers to construct an arterial road from east to west, at a cost of £120,000, and to run trolley omnibuses. The Corporation desired to remove the tramways and substitute trolley omnibuses, and to run them for a short distance outside the borough. The Corporation asked for power to apply to the Ministry of Transport for a Provisional Order permitting them to run other trolley vehicle services outside the borough when they became necessary. Alderman John Moxon, chairman of the Parliamentary Committee of Newport Corporation, in giving evidence, said it was proposed to buy land for the purpose of a trolley vehicle terminus. The Committee decided to give powers to run trolley vehicles on the proposed route, stipulating that no poles or overhead equipment should be erected until the road had been constructed to the satisfaction of the Minister of Transport. They refused to permit the Corporation to seek extensions of the route by Provisional Order. The period allowed for the repayment of money borrowed for road construction was fixed at forty years.

PERSONAL.

Mr. J. C. O'Neill has been recommended by East Ham Tramways Committee for the position of traffic superintendent at a commencing salary of £325 per annum.

Mr. McCartney, of Preston, a member of the English Electric Co.'s staff, at Thornbury Works, has been appointed supervisor of Bradford trolley omnibus services.

Mr. R. F. Browne, of the Free State Revenue Commissioners, has been appointed chairman of Dublin Electricity Supply Board in succession to Mr. J. J. Murphy, who has resigned. The Board has control of the national electricity supply made available by the Shannon power scheme.

Mr. A. A. Jackson, formerly chief clerk of the Nottingham Transport Department, was, at the staff dinner of the department, held on March 7, presented with a gold watch, suitably inscribed, to mark the occasion of his appointment as deputy manager at Coventry. The presentation was made by the general manager, Mr. G. W. Marks, who paid a tribute to Mr. Jackson's services in Nottingham and wished him every success in his new post.

Mr. W. G. Snell, late manager of Perth Corporation Tramways, passed away suddenly on March 6. Owing to a nervous breakdown Mr. Snell, two years ago, resigned his position at Perth. He subsequently took up residence at Dundee, where his health improved to an extent that permitted him to accept a post in the transport department. Mr. Snell was only 45 years of age, and it was with great regret that his new and old colleagues heard of his decease.

FINANCIAL.

Croydon Corporation Tramways.—The deficit on Croydon Corporation Tramways undertaking for the past year has been reduced to £28,506, a great decrease compared with each of the past five years.

Blackburn Corporation Tramways.—There is an estimated income for the year ending March 31 of £314,000, and expenses, £223,000, leaving a balance on working of £91,000. After paying road charges there is a net surplus of £25,000.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended March 12 amounted to £82,592, an increase of £891 compared with the corresponding week of last year. The route length was 165.55 miles, as compared with 166.29 a year ago. From April 1 (the commencement of the financial year) to March 12 (49 3-7 weeks) the total receipts were £4,133,776, an increase of £76,795.

Municipal Transport Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended February 22 give total receipts of £396,186, or £28,469 more than in the corresponding week of last year. The aggregate receipts for 47 weeks amounted to £19,514,230, an increase of £934,712 over the corresponding period of last year.

Torquay Tramways Co. report a decrease of £4,141 on last year's profits. A profit of £50,000 was shown on sales of 50 per cent. of the company's holding of ordinary shares in the Devon General Omnibus & Touring Company, out of which a special bonus of 6s. per share has been paid. A final dividend of 5 per cent. is announced. The report states that an agreement in regard to the substitution of trolley vehicles for tramcars has been reached with Torquay Corporation.

Liverpool Overhead Railway Co., for the year ended December 31, 1929, shows gross revenue £95,338, and working expenses £78,759 (including an appropriation to the contingency fund of £400), leaving a profit on working of £16,578. Deducting debenture interest, £7,755, there is a balance, including £3,730 brought forward, of £13,554. After paying 5 per cent. on the preference shares, there is £5,623 to be carried forward The number of passengers was 7,485,685, a decrease of 25,874.

Dublin United Tramways.—The report for the year ended December 31, 1929, shows that the revenue from passenger traffic was £462,105 (against £558,580), while total receipts were £477,329 (against £574,621). After payment of interest and wayleaves, £13,431, and meeting a balance from the omnibus section of £2,868, there was an available balance of £62,637. Dividends on preference stock at 6 per cent. absorbed £30,600, and £20,000 has been set aside for track renewal, leaving to be carried forward £12,037. The passengers totalled 78,535,619, against 89,763,457. The mileage of passenger cars was 7,713,854 against 8,212,881. The energy consumed amounted to 18,120,229 units, against 19,103,626. The company now has 326 cars and 76 omnibuses. The mileage worked remains at about 61.

CONTRACTS.

Karrier Motors, Ltd., have an order from South Shields Council for a motor sweeper, sprinkler and washer.

Edgar Allen & Co., Ltd., have an order from Liverpool Tramways Committee for 200 pairs of tramway rail fishplates.

Hull Tramways Committee has placed an order for 5,000 telephone insulators with the Equipment and Engineering Co., Ltd.

Hull Corporation has placed for twelve months their requirements for petrol with Russian Oil Products, Ltd., at 1s. 1d. per gallon.

Warrington Tramways Committee has placed an order for a Luchard high-pressure air compressor for tyre inflation with the Equipment and Engineering Co., Ltd.

East Ham Tramways Committee has recommended acceptance of the tender of the Brush Electrical Engineering Co., Ltd., for the supply of four double-deck car bodies with trucks and brakes at £1,917 each.

The English Electric Company, Ltd., has received orders for forty double-deck top-covered omnibus bodies for Birmingham Corporation at a cost of about £33,000, and a further order for similar bodies from Newcastle-on-Tyne Corporation.

Rotherham Transport Committee has recommended acceptance of the tenders of Charles H. Roe, Ltd., for the supply of two bodies for road luxury vehicles to be used in connection with private hire, at £625 each, and of the Bristol Tramways and Carriage Co., Ltd., for the supply of the chassis at £715 10s. each.

Portsmouth Transport Committee recommends acceptance of the tender of Michelin Tyre Co., Ltd., for the supply of pneumatic tyres on a mileage basis as follow: 36 ins. by 6 ins., 0.336d. per car mile; 38 ins. by 7 ins., 0.473d. per car mile; 32 ins. by 6 ins., 0.401d. per car mile; 36 ins. by 8 ins., 0.727d. per car mile.

Vulcan Motor and Engineering Co. (1906), Ltd., have received further orders from various Corporations. These include 28-seat complete omnibuses and also omnibus bodies for Northampton Corporation, fifteen 32-seat omnibus bodies for Manchester Corporation, and a fleet of 51-seat double-deck omnibuses for Southport Corporation.

British Insulated Cables, Ltd., of Prescot, have secured the contract for erecting an overhead line from Stourport to Banbury to the order of the Shropshire, Worcestershire, and Staffordshire Electric Power Co. This overhead line, fifty miles in length, is to consist of steel cored aluminium conductors supported on steel lattice towers. The voltage is 66,000, and the value of the contract is in the neighbourhood of £110,000.

Digitized by Google

The Associated Equipment Co., Ltd., has received the following orders:—Passenger Vehicles: Huddersfield Corporation, four "Regent" double deckers; E. G. Hewett, three "Regal" single deckers; Central Garage Co., "Regal" single decker; G. Burnham, "Regal" single decker; Blackheath Motor Co., "Regal" single decker; Newcastle Corporation, three Regent double-deckers; Northampton Corporation, "Renown" six-wheeler; Colchester Corporation, three "Regent" double deckers and one "Regal" single decker. Commercial Vehicles: Anglo-American Oil Co., ten "Mercury" 3½ tonners and two "Regent" chassis; C. Isler & Co., Ltd., "Monarch" 4-tonner; J. Ibbotson & Son, "Mammoth" 7—8-tonner; Urania Bil, Sweden, have ordered a "Regal" single-deck omnibus.

Petrol and Oil for Portsmouth Omnibuses.—The Transport Committee of Portsmouth Corporation has been engaged in considering tenders for the supply of petrol for the Corporation omnibuses. Nine tenders were submitted at prices ranging from 1s. 0¼d. to 1s. 2 11-16d. per gallon, and the lowest price was that quoted by Russian Oil Products, Ltd. The Committee, in view of the policy involved, and the considerable sum, approximately £900, that would be saved by acceptance of the tender of Russian Oil Products, Ltd., have asked the Council to say which of the two lowest tenders should be accepted. The tender of the Vacuum Oil Co., Ltd., for the supply of lubricating oils for tramcars and omnibuses, at 0.0295d. per car mile and 0.145d. per omnibus mile, was recommended for acceptance.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

Name.	Week ended	Latest Return. 1929	1930	+ or —	Aggregate. Wks.	1929-30	+ or —
		£	£	£		£	£
Aberdare U.D.C.	Mar. 11	540	550	+ 10	49½	29,437	+ 3,006
,, Motor Buses	,, 11	212	270	+ 58	49½	12,807	+ 1,987
,, Total	,, 11	752	820	+ 68	49½	42,334	+ 4,993
Aberdeen Corp.	,, 5	4,200	4,430	+ 230	40½	198,000	+ 16,206
Ashton-u-Lyne Corp.	,, 1	786	832	+ 46	48	43,626	+ 1,824
,, Motor Buses	,, 1	438	445	+ 7	48	23,168	+ 2,976
,, Trolley Buses	,, 1	274	259	+ 15	48	13,457	— 698
,, Total	,, 1	1,498	1,536	+ 38	48	80,251	+ 4,102
Ayr Corporation	,, 8	404	422	+ 18	42	24,888	+ 1,464
Barrow Corporation	Feb. 15	500	498	— 2	46	27,053	— 3,206
,, Motor Buses	,, 15	255	327	+ 72	46	17,711	+ 7,391
,, Total	,, 15	755	825	+ 70	46	44,764	+ 4,185
Belfast City	Mar. 7	10,423	11,073	+ 650	48½	545,620	+ 83,288
,, Motor Buses	,, 7	952	1,374	+ 422	48½	55,034	+ 35,753
,, Total	,, 7	11,375	12,447	+ 1,072	48½	597,654	+ 119,041
Birkenhead Corp.	,, 9	1,613	1,495	— 118	49	79,805	— 19,375
,, Motor Buses	,, 9	2,847	3,0.6	+ 209	49	171,318	+ 31,317
,, Total	,, 9	4,460	4,551	+ 91	49	251,123	+ 20,942
Birmingham Corp.	,, 4	24,564	26,789	+ 2,225	48	1,316,838	+ 22,632
,, Motor Buses	,, 4	11,330	15,215	+ 3,885	48	655,253	+ 121,073
,, Trolley Buses	,, 4	509	559	+ 50	48	27,277	+ 938
,, Total	,, 4	36,403	42,563	+ 6,160	48	1,999,368	+ 144,643
Blackburn Corp.	,, 5	1,917	1,693	— 224	48½	92,901	— 5,148
,, Motor Buses	,, 5	Nil	298	+ 298	17½	5,944	+ 5,944
,, Total	,, 5	1,917	1,991	+ 74	48½	98,845	+ 796
Bradford Corporation	,, 8	13,444	14,180	+ 736	49	724,654	+ 40,497
Brighton Corporation	,, 9	2,061	2,171	+ 110	49	125,668	+ 4,008
Burnley Corporation	,, 8	3,074	2,947	— 127	...	...	...
,, Motor Buses	,, 8	685	742	+ 57	...	...	...
,, Total	,, 8	3,759	3,689	— 70	...	...	...
Burton-on-Trent Cpn.	,, 9	745	858	+ 113	49	26,702	+ 6,680
Bury Corporation	,, 9	2,189	1,904	— 285	49	96,546	— 9,508
,, Motor Buses	,, 9	330	952	+ 622	49	30,974	+ 13,070
,, Total	,, 9	2,519	2,856	+ 337	49	127,520	+ 3,562
Cardiff Corporation	,, 8	6,927	7,443	+ 516	48½	377,487	+ 9,886
Chatham and District	,, 6	905	1,040	+ 135	9	9,662	+ 754
Chesterfield Corp.	,, 10	1,934	2,022	+ 88	49	97,329	+ 3,811
Colchester Corp.	,, 12	474	570	+ 96	50	27,838	+ 5,263
Colne Corporation	,, 12	696	693	— 3	50	35,261	+ 302
Coventry Corporation	,, 9	2,110	2,055	— 55	49	104,989	+ 2,344
,, Motor Buses	,, 9	1,472	1,795	+ 323	49	82,250	+ 21,592
,, Total	,, 9	3,582	3,850	+ 268	49	187,239	+ 23,936
Darlington Corp.	,, 8	953	1,040	+ 87	48½	49,258	+ 1,547
Derby Corporation	,, 8	2,273	2,372	+ 99	49	122,106	— 3,006
,, Motor Buses	,, 8	578	866	+ 288	49	37,984	+ 15,498
,, Total	,, 8	2,851	3,238	+ 387	49	160,090	+ 12,492
Dover Corporation	,, 8	316	340	+ 24	49	19,819	+ 752
Dundee Corporation	,, 4	3,166	3,289	+ 123	41½	144,278	+ 5,591
East Ham Corp.	,, 8	2,205	2,261	+ 56	48½	112,737	+ 5,414
Edinburgh Corp.	,, 1	12,316	13,380	+ 1,064	41½	597,301	+ 26,179
,, Motor Buses	,, 1	2,925	3,374	+ 449	41½	144,955	+ 17,075
,, Total	,, 1	15,241	16,754	+ 1,513	41½	742,256	+ 43,254
Exeter Corporation	,, 12	801	754	— 47	50	42,195	+ 656
Glasgow Corporation	,, 1	41,020	42,583	+ 1,563	39	1,734,438	+ 27,849
,, Motor Buses	,, 1	4,896	7,799	+ 2,903	39	243,246	+ 122,848
,, Total	,, 1	45,916	50,382	+ 4,466	39	1,977,684	+ 150,697
Gloucester Corp.	Feb. 26	460	621	+ 161	47½	28,847	+ 2,789
Grimsby Corporation	Mar. 8	1,275	1,464	+ 189	49	71,704	+ 6,844
Halifax Corporation	,, 4	3,736	4,882	+ 1,146	48½	229,825	+ 21,374
Huddersfield Corp.	,, 8	6,159	6,252	+ 93	49	301,217	+ 5,043
Hull Corporation	,, 8	5,780	5,949	+ 169	49	296,540	+ 1,806
,, Motor Buses	,, 8	1,264	1,448	+ 184	49	69,917	+ 9,346
,, Total	,, 8	7,044	7,397	+ 353	49	366,457	+ 11,152
Ilford Corporation	,, 8	1,452	1,474	+ 22	48½	73,519	+ 1,745
Ipswich Corp. Trol.Bus	,, 8	1,117	1,206	+ 89	49	63,064	+ 4,420
Isle of Thanet	,, 5	327	374	+ 47	9½	3,178	+ 264
Kilmarnock Corp.	,, 8	408	460	+ 52	42½	20,318	+ 1,484
Lancashire Un.	,, 2	2,227	2,091	— 136	8½	19,130	— 337
,, Motor Buses	,, 2	3,624	4,468	+ 844	8½	39,563	+ 7,422
Leeds Corporation	,, 8	18,746	19,647	+ 883	48	958,934	+ 35,796
Leicester Corp.	,, 8	7,806	8,316	+ 510	49	413,963	+ 21,538
Lincoln Corp.	,, 2	803	844	+ 41	18	44,377	+ 1,950
Liverpool Corp.	,, 8	28,699	29,270	+ 571	48½	1,472,073	+ 31,613
London County Coun.	,, 12	81,701	82,592	+ 891	49½	4,133,776	+ 76,795
Luton Corporation	,, 5	323	377	+ 54	48½	19,605	+ 1,329
Maidstone Corp.	,, 6	176	Nil	— 176	48½	8,637	— 3,703
,, Motor Buses	,, 6	229	247	+ 18	48½	15,322	+ 4,355
,, Trolley Buses	,, 6	257	519	+ 262	48½	15,507	+ 2,553
,, Total	,, 6	662	766	+ 104	48½	39,466	+ 3,105
Manchester Corp.	,, 8	33,644	34,000	+ 356	49	1,712,435	+ 21,070
Motor Buses	,, 8	4,575	5,571	+ 996	49	245,439	+ 37,740
Total	,, 8	38,219	39,571	+ 1,352	49	1,957,874	+ 58,810
Middlesbrough Corp.	Mar. 4	997	1,050	+ 53	48½	54,836	— 225
,, Motor Buses	,, 4	458	576	+ 118	48½	25,818	+ 4,031
,, Total	,, 4	1,455	1,626	+ 171	48½	80,654	+ 3,806
Newcastle-on-Ty. Corp.	,, 8	8,808	8,720	— 88	49	479,031	+ 20,688
,, Motor Buses	,, 8	1,856	2,198	+ 342	49	99,984	+ 9,941
,, Total	,, 8	10,664	10,918	+ 254	49	579,015	+ 30,629
Newport Corporation	,, 1	642	720	+ 78	48	36,729	+ 2,675
,, Motor Buses	,, 1	1,566	1,540	— 26	48	80,919	+ 574
,, Total	,, 1	2,208	2,260	— 52	48	117,648	+ 3,249
Northampton Corp.	,, 7	1,259	1,047	— 212	48½	54,432	— 15,594
,, Motor Buses	,, 7	361	647	+ 286	48½	32,712	+ 17,053
,, Total	,, 7	1,620	1,694	+ 74	48½	87,144	+ 1,459
Nottingham Corp.	,, 6	6,063	5,776	— 287	48½	315,639	— 10,769
Motor Buses	,, 6	2,106	3,109	+ 1,003	48½	124,346	+ 30,159
,, Trolley Buses	,, 6	548	1,208	+ 660	48½	30,100	+ 2,835
Total	,, 6	8,717	10,093	+ 1,376	48½	470,085	+ 22,225
Oldham Corporation	,, 8	3,596	3,547	— 49	50	178,796	— 14,571
,, Motor Buses	,, 8	1,963	2,052	+ 89	50	100,698	+ 27,848
,, Total	,, 8	5,559	5,599	+ 40	50	279,494	+ 13,277
Plymouth Corp.	,, 8	3,337	3,295	— 42	48½	181,673	— 2,934
,, Motor Buses	,, 8	1,754	2,057	+ 303	48½	99,227	+ 15,061
,, Total	,, 8	5,091	5,352	+ 261	48½	280,900	+ 12,127
Portsmouth Corp.	,, 8	5,208	6,084	+ 876	49	315,638	+ 20,797
Preston Corporation	,, 5	1,554	1,588	+ 34	48½	83,117	+ 1,120
,, Motor Buses	,, 5	432	4.0	+ 58	48½	24,213	+ 3,009
,, Total	,, 5	1,968	2,078	+ 92	48½	107,330	+ 4,129
Rawtenstall Corp.	,, 9	803	791	— 12	49	41,383	— 1,952
,, Motor Buses	,, 9	500	566	+ 66	49	25,708	+ 3,607
,, Total	,, 9	1,303	1,357	+ 54	49	67,151	+ 1,655
Reading Corporation	,, 6	1,342	1,461	+ 119	49	74,442	+ 712
Motor Buses	,, 6	780	889	+ 109	49	45,081	+ 2,967
,, Total	,, 6	2,122	2,350	+ 228	49	119,523	+ 3,679
Rochdale Corp.	,, 12	2,776	2,652	— 124	...	139,718	— 12,792
,, Motor Buses	,, 12	1,295	1,647	+ 352	...	77,931	+ 12,610
,, Total	,, 12	4,071	4,299	+ 228	...	217,649	— 182
Rotherham Corp.	,, 10	2,458	2,722	+ 264	50	137,487	+ 12,084
Salford Corporation	,, 9	10,667	11,414	+ 747	49	552,209	+ 38,797
Sheffield Corp.	,, 8	19,443	21,087	+ 1 644	49	1,026,537	+ 37,493
Southampton Corp.	,, 5	2,999	3,202	+ 203	49	166,238	+ 9,272
,, Motor Buses	,, 5	623	840	+ 217	49	40,139	+ 10,822
,, Total	,, 5	3,622	4,042	+ 420	49	206,377	+ 20,094
Southend-on-Sea Corp.	,, 12	1,862	1,913	+ 51	48½	117,454	+ 1,423
Southport Corp.	,, 8	1,374	1,444	+ 70	48½	81,769	+ 725
St. Helens Corp.	,, 4	1,905	1,988	+ 83	48½	99,242	+ 6,773
Sunderland Corp.	,, 9	2,088	2,314	+ 226	49	118,024	+ 5,480
Swindon Corp.	,, 5	528	855	+ 327	48½	40,278	+ 11,919
Wallasey Corp.	,, 8	1,180	1,099	— 81	48½	62,760	— 35,811
,, Motor Buses	,, 8	1,730	1,898	+ 168	48½	100,804	+ 54,234
,, Total	,, 8	2,910	2,997	+ 87	48½	163,660	+ 18,523
Walsall Corporation	,, 2	3,092	3,646	+ 554	48	166,936	+ 15,083
Walthamstow Corp.	,, 8	2,213	2,384	+ 171	49	119,086	+ 8,903
Warrington Corp.	,, 6	877	903	— 26	49	43,786	— 958
,, Motor Buses	,, 6	431	475	+ 44	49	22,559	+ 3,445
,, Total	,, 6	1,308	1,378	+ 70	49	66,345	+ 2,487
West Ham. Corp.	,, 8	5,639	6,098	+ 459	48½	297,224	+ 26,782
Wolverhampton Corp.	,, 2	Nil	Nil	Nil	48	Nil	— 15,958
,, Motor Buses	,, 2	2,566	2,323	— 243	48	132,106	+ 15,545
,, Trolley Buses	,, 2	2,892	3,637	+ 745	48	163,190	+ 27,004
,, Total	,, 2	5,458	5,960	+ 502	48	295,296	+ 26,591
York Corporation	,, 5	865	927	+ 62	49	50,740	+ 585
,, Motor Buses	,, 5	348	476	+ 128	49	20,974	+ 5,084
,, Total	,, 5	1,213	1,403	+ 190	49	71,714	+ 5,669

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

Name.	Week or M'th.	Latest Return. 1928-29.	1929-30.	Aggregate. Wks. or *Ms.*	1929-30.	In. or Dec.
Anglo-Argentine	Mar. 11	£90,545	£84,705	10 w	£831,544	— £31,852
Brazilian Traction $	Jan.	3,892,833	3 862,089	1 *m*	3,862,089	— 30,744
British Columbia $	Dec.	1,228,405	1,255,522	6 *m*	7,251,473	+ 400,835
Buenos Aires Lacroze	Mar. 9	13,392	12,790	36 w	419,648	— 25,988
Burma E. Sup. Co. Rs.	Jan.	64,372	62,533	6 *m*	375,870	— 26,062
Calcutta ... Rs.	Mar. 8	134,726	133,505	9¼ w	1,206,567	— 85,996
Cape Town	Jan.	31,777	31,036	...	...	...
Carthagena & Herrerias	Feb.	972	1,286	2 *m*	2,037	+ 933
Durban	Jan.	23,916	24,577	6 *m*	145,553	+ 2,787
East India	Feb.	3,055	3,127	7 *m*	26,662	+ 797
Kalgoorlie	Nov.	1,721	1,643	11 *m*	18,817	— 369
La Plata	Dec.	10,300	10,327	12 *m*	116,149	+ 2,604
Madras (2 weeks) Rs.	Feb. 28	35,800	37,165	8 w	180,671	+ 10,835
Para	Jan.	14,028	14,556	2 *m*	29,043	+ 655
Port Elizabeth ...	Jan.	9,293	9,016	...	...	...
Rangoon ... Rs.	Feb.	114,300	140,130	2 *m*	295,210	+ 64,075
Shanghai ... $	Feb.	294,708	322,473	2 *m*	685,873	+ 71,945
Singapore ... ...$	Feb.	117,000	128,000	5 *m*	655,000	+ 92,000
Winnipeg ... ...$	Dec.	586,264	641,362	12 *m*	6,635,237	+ 448,374

RAILWAY RECEIPTS.

10th Week ended Mar. 9th	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week.	Inc. or Dec. to Date.
G.W.R.	180,000	— 9,000	353,000	— 16,000	542,000	— 25,000	+ 45,000
L.M.S.R.	42,000	— 8,000	859,000	— 51,000	1,284,000	— 59,000	— 126,000
L.N.E.R.	293,000	— 2,000	688,000	— 10,000	981,000	— 12,000	+ 126,000
S.R.	256,000	+ 6,000	98,000	— 13,000	354,000	— 7,000	+ 79,000
Totals	1,163,000	— 13,000	1,998,000	— 90,000	3,161,000	— 103,000	+ 126,000

ELECTRIC RAILWAYS.

Name.	Week Ended.	Latest Return. 1929.	1930.	+ or —	Aggregate. 1930.	+ or —
London Underground						
Common Fund Cos.	Mar. 8	273,900	297,600	+ 23,700	2,842,400	+ 294,300
Lond. & Sub. Group	,, 8	39,000	43,000	+ 4,000	411,700	+ 55,700
Metropolitan Railway	,, 8	35,000	35,600	+ 600	363,200	+ 16,300
Liverpool Overhead	,, 9	1,563	1,460	— 103	15,153	— 472
Mersey Railway ...	,, 8	4,629	4,793	+ 164	47,857	+ 1,876

Digitized by Google

THE
Tramway AND Railway World
FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.
Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates—
FOR THE UNITED KINGDOM—Twenty-five shillings per annum.
FOR ALL PLACES ABROAD—Twenty-five shillings per annum. Postage to Canada, 6s.; to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS

LONDON, MARCH 22, 1930.

THE ADVANCE OF THE TROLLEY OMNIBUS.

Rapid as has been the progress of the trolley omnibus in this country during the past eight years, the present year will bring a great increase in the number of installations. Incidentally, it is of interest to observe that the snowstorm in the Midlands last week-end, and the fall of twelve inches in the South-East on Wednesday last have not interfered with the working of trolley omnibuses in such towns as Wolverhampton, Nottingham, Birmingham, and Hastings. An outstanding cause of encouragement to the builders of trolley omnibuses is the attention which has been given to the construction and operation of their vehicles by at least three Continental countries. One builder is supplying fleets to Italy and Belgium, and following the visit of German traction experts to several English installations towards the end of last year, it is not unlikely that business may be done with Germany. The best indication of progress on this side of the Channel is the fact that the municipalities alone this session have before Parliament twenty-three Bills in which powers are sought to operate trolley omnibuses. Nor are tramway companies less anxious to adopt this means of providing an efficient and popular alternative to tramways that would not prove profitable if reconstructed at present costs. The retention of electricity as the source of power, and the liberation of the operating authority from the obligation to maintain the track and its margins, are other great advantages. In making the change an authority is not venturing upon an uncharted sea. It will be seen from the table and details given in the Ministry of Transport returns of trolley omnibus undertakings for 1928-29 that there were twenty-one local authorities and two companies with over 132 miles of route open for traffic. Extracts from the returns published in our issue for February 13, reveal for municipalities an operating ratio to receipts as reasonable as 73.59 per cent. Further, on a capital expenditure of £1,171,203, there were gross receipts of £575,953, and expenses £423,820, leaving £152,133 as net receipts. Of even greater interest are some figures for Wolverhampton for the period April 1, 1929, to January 5, 1930, which Mr. Silvers, the general manager, has lately published. Trolley vehicle operating expenses per mile were 10.48d., and per 100-seat miles 21.4d. For motor omnibuses, the figures were 12.148d. and 29.63d. The total for trolley omnibuses included about three-farthings for rates. Eight years have passed since Mr. Silvers inaugurated the Wolverhampton system, and now all the tramways have been replaced. He has confounded critics who predicted the total failure of the project.

MIDDLESEX COUNTY COUNCIL TRAMWAYS.

THE NEW LEASE TO THE M.E.T., LTD.

The Middlesex County Council, as briefly announced in last week's issue, have granted a new lease of the tramways to the Metropolitan Electric Tramways, Ltd. The Highways Committee in their report alluded to a letter received from Lord Ashfield, in which he said that, "subject to the conclusion of an agreement between the Metropolitan Electric Tramways and the London General Omnibus Companies to cancel the existing pooling agreement and to define the financial relationships between them in the new circumstances, which I am hopeful may be arranged, I am agreed in principle to the London General Omnibus Company being a party to the lease with the Middlesex County Council for the purpose of guaranteeing that the rent due to the Council under the lease shall be fully paid in each year."

The Committee added that the proposed lease was for 42 years, and that as the Council had no power to lease for a longer period than 30 years, power was being sought in the Bill now before Parliament. The rent would approximate £72,000 per annum. The company would undertake a programme comprising the immediate reconstruction of twelve miles, to be agreed between the county and company's engineers. It would, however, be necessary for the company to raise a loan of £300,000 to meet this expenditure. The gradual elimination of the worst portions of the track would eventually decrease the expense of maintenance, so that upon the completion of the programme the company anticipated being in a position to continue the reconstructions and in the event of default of such works, the Council would have full remedies under the clause.

One of the heads of agreement was that the Tramways Company should not make any alteration of fare and stages, or of any substantial change in the services to be provided without the previous consent of the County Council. Any difference arising under this clause between the parties should, it was proposed, be determined by the Minister of Transport acting on the advice of the London and Home Counties Traffic Advisory Committee.

Mr. W. B. Pinching, in proposing acceptance of the terms of lease, stated that if the proposals fell through, the Council would be faced with expenditure totalling £900,000 because of the necessity of repairs to tracks and of providing new cars and equipment. Another point was that the balance sheet of 1928 showed the tramways receipts to be 13.745d. per mile against running expenses of 13.041d. Other charges made the total cost per mile 16.231d. Under a pooling system the L.G.O.C. gave the tramways company 2d. per mile, but if the Council took over the tramways it would mean the loss of that grant and an actual running loss of 2.486d. per mile. Forty-five new cars were to be placed on the road, and most of these would serve the Finsbury Park district, where congestion was greatest.

The report was adopted with the exception that any difference as to fares is to be determined by the Minister of Transport without any advice from the Traffic Advisory Committee, on which the Underground Group is represented.

TROLLEY VEHICLES FOR BOURNEMOUTH.

The Local Legislation Committee of the House of Commons on March 20 passed the clauses of the Bournemouth Corporation Bill, and granted protection from competition. The Corporation sought powers to substitute trolley vehicles for tramcars, to run trolley vehicles on fourteen new routes, and also to run petrol omnibuses. By agreement, the powers asked for had been limited to run omnibuses within the Borough of Poole, subject to the consent of the Poole Corporation, and along two alternative routes between Bournemouth and Christchurch, subject to the consent of the Minister of Transport.

Mr. A. R. Fearnley, general manager of Sheffield Corporation Tramways and Motors, in giving evidence in support of the Bill, said he regarded trolley vehicles as particularly well suited to towns of medium size, where the expense of constructing or reconstructing tramways was not justified. Trolley vehicles were somewhat faster than tramcars, did no more damage to the roads than ordinary omnibuses, and were slightly cheaper to run.

Speed of London Omnibuses.—Representatives of the London General Omnibus Co. and the Transport and General Workers' Union have discussed the project for increasing the speed of London omnibuses. The latest type of omnibus equipped with pneumatic tyres is an argument in favour of the scheme. After the conference Mr. Bevin, secretary of the Union, stated that both sides would have to consider the proposals further before there could be a final decision.

Digitized by Google

THE ROAD TRAFFIC BILL.

AGE LIMIT FOR MOTOR-CYCLISTS AND DRIVERS OF HEAVY MOTOR-CARS.

Select Committee C of the House of Commons, which is considering the Road Traffic Bill, sat again on Tuesday and Wednesday under the chairmanship of Sir Hugh O'Neill.

The first clause (9) considered was that which prohibits a boy under sixteen from driving a motor-cycle, unless he can satisfy the licensing authorities that he was regularly driving a vehicle for six months before January 1, 1930.

Mr. Erskine moved an amendment to make the age fifteen, but the proposal was rejected by 27 votes to 13.

Lieut.-Col. Ashley then moved that eighteen should be substituted for twenty-one as the age under which a person shall not be allowed to drive a heavy motor-car. He did not, however, intend his amendment to apply to public service vehicles. Motor manufacturers considered that the fixing of the age at twenty-one would interfere with the existing practice of training motor-lorry boys under the supervision of experienced drivers. Drivers in the armed forces were allowed to drive motor vehicles at the age of eighteen, and what was good enough for them should be good enough for others.

Mr. Morrison said that the age for the driving of passenger vehicles had been voluntarily raised to twenty-one in the interests of public safety, and it was not unreasonable that the same age should be fixed in the case of heavy motor vehicles. The amendment would lead to administrative complications. He agreed that the driving of heavy motor vehicles was a man's job. The amendment was rejected by 26 votes to 9.

SPEED LIMIT REJECTED.

On Thursday the Committee rejected by a large majority a proposal to impose a speed limit upon private motor-cars.

Mr. Hall Caine moved an amendment to restrict the speed to 40 miles an hour, and Dr. Salter desired to limit it to 35 miles an hour.

Mr. Morrison, Minister of Transport, said the Committee were about to take a decision of the greatest importance, and he had reached the conclusion which was embodied in the Bill after much thought. The speed limit had been abolished in Northern Ireland and the Minister and the officers in charge said that so far the number of accidents and fatalities in Ulster had not increased. The situation was that the speed limit had already been abolished by the tacit consent of general public opinion. Laws ought not to be passed unless there was public opinion behind them. It would not be right to lay down certain speed limits which would not be observed by a large number of motorists. He did not believe that speed was the primary cause of accidents, but the Bill did not say that any speed was to be a safe speed. It would be an offence to drive at a speed that was dangerous to the public, having regard to the circumstances of the case. He believed the Bill would reduce the number of accidents.

The Committee rejected Mr. Hall Caine's amendment by 45 votes to 7, and Dr. Salter's amendment was negatived without a division.

L.C.C. TRAMWAY MATTERS.

PROPOSED TRAMWAYS TO ST. HELIER ESTATE.

About 10,000 houses will be erected on the St. Helier estate, now being developed by the Council. The estate is situated in the Merton, Morden and Carshalton urban districts, and its northern boundary is 2½ miles by road from the London county boundary. Besides railway and omnibus services, there is a terminus of the South Metropolitan Tramways about three-quarters of a mile from the northern boundary of the estate. The Highways and Housing Committees, at the meeting of the Council on Tuesday, reported that the company would be willing to seek powers to extend the tramways from Mitcham cricket green through the estate, provided road widenings were carried out and a bridge reconstructed. The Surrey County Council were negotiating for the widenings. At present the L.C.C. cars give a through service to and from Mitcham.

MOBILE GANGS FOR EMERGENCY REPAIRS.

On the recommendation of the Highways Committee, the pay for special mobile gangers employed in the permanent way branch is to be at the rate of 65s. per week, plus transport workers' war wages, with an additional 15s. per week when employed on night work. Since the existing rates were fixed in 1923, the arrangements for carrying out repairs to the permanent way had been entirely revised. Special mobile gangs and motor lorry equipment had been introduced, and were available to be sent immediately to any place after normal working hours, in order to carry out urgent and emergency tramway repairs, pending the arrival of the ordinary gangs engaged on programme work.

It was decided to purchase two electrically-operated calculating machines for the tramways department, at a probable cost not exceeding £165, after allowing for two old machines taken in part payment. The Highways Committee stated that the manufacture of these machines is a foreign industry, although the assembly work is, in some instances, carried on in this country.

Belfast Corporation Omnibus Scheme.—Four new omnibus routes are being inaugurated by Belfast Tramways Committee. It is intended ultimately to establish an inner and outer circle in the city and to link the services to all districts by cross-town routes. This system will obviate the necessity of going to the centre of the city when travelling from one suburb to another.

MISCELLANEOUS NEWS AND NOTES.

Notts and Derbyshire Traction Co. have notified Basford Rural Council of their intention to provide trolley omnibuses in the parish of Shipley.

Summer Time.—Summer Time will begin on the night of April 12-13 by agreement between Great Britain, France and Belgium, states a Reuter message from Paris.

Omnibus Maximum Weight Concession.—The Minister of Transport has decided that the maximum weight for double-deck omnibus shall be 9½ tons, an increase of 10 cwt.

A Bradford Trolley Omnibus Route.—The newly-equipped trolley omnibus route from Bradford to Saltaire, via Thackley, will be opened on March 28. It is 6½ miles in length.

Hull Tramcar Improvements.—It has been decided to remodel the Hull Corporation tramcars, the seats to face forward and to be upholstered. The question of electrical heating is being considered.

Heavy Snowfall.—Snow fell throughout England and Scotland on March 19, and in many places the road traffic was seriously impeded. Near Chester the depth of snow was about eight inches.

Wembley-Stanmore Railway Bill.—The unopposed Bill of the Metropolitan Railway Company for the construction of a railway from Wembley to Stanmore was passed for third reading on March 19.

"Ticket Issuer" Trial at Manchester.—To test the claim of the maker of the "Ticket Issuer" that his machine will effect an economy, the Manchester Tramways Department is making a trial of the invention.

Suggested London Extension.—The Highways Committee of the London County Council has asked the Ministry of Transport for their view regarding a suggested extension of the tramways from Lee Green to Blackheath.

Temporary Waterloo Bridge.—The London County Council proposes to close temporary Waterloo Bridge to vehicular traffic from midnight on Saturday, March 22, until April 17, in order that the carriage way may be repaired.

Royal Commission on Transport.—Mr. R. H. Tolerton, secretary to the Royal Commission on Transport, is to visit Berlin, Paris, Brussels and other Continental cities to inquire into the methods adopted in the co-ordination of goods services by road.

Northern Ireland Electrical Development.—Mr. J. M. Kennedy, of Messrs. Kennedy & Donkin, of Westminster, who was recently appointed by the Northern Ireland Government to report upon electrical developments, has presented an interim report.

Bradford Corporation Licensing Committee has refused to grant licences for single-deck omnibuses of the Leeds Corporation and Railways Joint Omnibus Committee's Bradford-Leeds service, as such vehicles exceed the maximum length fixed by the Council.

Future of Carlisle Tramways.—An interview has taken place between representatives of the City Council and of the Carlisle and District Transport Co. on the question whether the company intends to develop the tramways or to introduce another means of transit.

Tramway Interference with "Wireless."—On the suggestion of the B.B.C. certain alterations have been effected in the electrical equipment of the Burnley tramcars with a view to minimising interference with wireless reception. The trouble is stated to have been reduced considerably.

Chester's Increased Receipts.—On the Chester Corporation's new fleet of A.E.C. "Regent" and "Regal" omnibuses for the week ended February 23, 1930, 103,517 passengers were carried and receipts totalled £543. For the week ended February 4, 1929, there were 70,119 passengers, and the receipts were £373.

Injunction Against Manchester Omnibus Owner.—On the application of Manchester Corporation, Mr. Justice Farwell on March 14 granted an injunction against John Sharp from plying his omnibuses for hire within the city without a licence from the Corporation. The service crossed the city between Eccles and Hazel Grove.

Where Pedestrians Can Stop Traffic.—Manchester branch of the Pedestrians' Association has asked the Watch Committee to consider installing at compulsory tramcar stops the type of signal now being tried in Oldham-street and Portland-street. The pedestrian, by pressing a button, can bring all traffic to a halt and cross the road in safety.

Glasgow's Claim to Transport Monopoly.—Several members of the Glasgow Transport Committee have been in London this week in connection with the approaching hearing of the Corporation's Bill in which a monopoly is to be claimed for the municipal tramways and omnibuses. Opposition will be offered by the omnibus and railway companies.

Solution of a Bridge Problem.—To enable Warrington Corporation omnibuses to pass under the Lodge-lane bridge, Mr. J. Telfer, the general manager of the transport department, is reducing the height of the upper decks by two inches when the vehicles are brought in for repairs. The question whether the road should be lowered or the bridge raised has been debated on several occasions by the Council.

Aberdare Tramways and Omnibuses.—A handy time-table and guide to the tramways and motor omnibuses of Aberdare Urban Council has been issued by Mr. W. E. Richardson, the engineer and manager. The convenience of travellers is studied by the inclusion of a page giving the times of the trains to Cardiff and Newport and back. A reminder is given to football patrons that comfortable travelling to and from Merthyr is provided by the Council's omnibuses to Abernant and thence by train. Weekly tickets are issued on the cars and omnibuses.

Digitized by Google

The Last Car Difficulty.—Following the recent departure of later running of tramcars on weekdays, Manchester Transport Department is introducing later last cars on Sundays. Complaints are still received that people miss the last cars. The official reply is that if travellers would time their return a little before the last car the Department would be helped considerably in meeting the needs of the public.

Emergency Doors of Single-Deck Omnibuses.—The Minister of Transport has informed Bournemouth Tramways Committee that emergency rear or off-side doors must be provided for single-deck omnibuses, irrespective of the number of near-side doors. The omnibuses on order for the express service of the department are, therefore, to be provided with the additional door at a cost of £7 10s. per vehicle.

Long-Distance Omnibus Fares in Glasgow.—The experiment of reducing the long-distance omnibus fares at Glasgow had attracted 100,000 more passengers up to the week ended March 12, without a reduction in the number of travellers by tramcar on the same routes. It is believed that the extra passengers were obtained from two sources—privately-owned omnibuses and from people who travelled home to the mid-day meal.

The Liverpool Licensing Appeal.—The refusal of Liverpool Corporation to licence the omnibuses of the Merseyside Touring Company to enable them to run in the streets of Liverpool has been upheld by the Ministry of Transport. Mr. P. Priestly, general manager of Liverpool Corporation Tramways, stated at the inquiry that Liverpool had been the transport authority for Bootle for 30 years and had built up a tramway and omnibus service. He complained that the Merseyside company's omnibuses were running in direct competition with the tramways, picking up passengers on the tramway route and charging the same fares.

The Tramways, Light Railways and Transport Association.—The journal of this Association for March contains a report of the proceedings of the first sitting of the Committee on the Road Traffic Bill on February 27, and particulars of the changes in the Articles of Association, which were recently adopted, including the change in the name of the Association by the inclusion of the words " and Transport." The annual congress of the Association, as already announced, will be held at Hastings on June 12 and 13, and full particulars will be published in the Association's Journal for April. Inquiries may be addressed to Mr. A. de Turckheim, Secretary, 55, Abbey House, Victoria-street, London, S.W.1.

Glasgow's New Omnibus Regulations.—Under the new regulations introduced by the licensing authorities in Glasgow, passengers can only be brought into the city from a point beyond the boundary, and can be carried from the city only to a point beyond the city boundary. In accordance with the regulation, privately-owned omnibuses plying to and from the city now exhibit notices stating at what stops within the city omnibuses are allowed to pick up and set down passengers. All omnibuses have now to make use of fixed stances and to proceed to their destination and return to their stances by the route indicated on their certificate. Some of the proprietors are dissatisfied with the new regulations, and it is expected that they will make an appeal to the magistrates.

Widening of Highways Carrying Tramways.—The Highways Committee of Wandsworth Council has reported that discussions had taken place between officers of the Ministry of Transport and the London County Council as to minimum and maximum widths to be aimed at in widening main highways in which tramways are operating. The suggested minimum is 87 feet, made up as follows: Footways, two at 11 ft., 22 feet; carriageways, two at 18 ft., 36 feet; tramway track, 16 feet; two refuges, each 4 ft. wide, 8 feet; between tramway rail and refuge, two at 2 ft. 6 in., 5 feet; total, 87 feet. The view is put forward that if possible these widths should be increased as follow, giving a total width of 92 feet, viz.: Footways, two at 11 ft. 6 in., 23 feet; carriageways, two at 20 ft., 40 feet; tramway track, 16 feet; two refuges, each 4 ft. wide, 8 feet; between tramway rail and refuge, two at 2 ft. 6 in., 5 feet; total, 92 feet. The committee has considered a report by the borough engineer suggesting that the under-mentioned widths are desirable in roads of the character mentioned, viz.: Two footpaths, each 14 ft. 6 in. wide, 29 feet; two carriageways, each 20 ft. wide, 40 feet; tramway track, 16 feet; two refuges, each 4 ft. 6 in. wide, 9 feet; distance between tramway rail and refuges, two at 4 ft., 8 feet; total, 102 feet. The committee formed the opinion that the main roads in the borough where tramways are in operation should, as a general rule, be widened to 100 feet as and when opportunities occur.

PERSONAL.

Sir Harry Haward is retiring at the end of March from the Electricity Commission upon the completion of his extended term of office, but will continue to act in a consultative capacity.

Mr. Charles Mitchell has been appointed joint managing director of Dorman, Long & Co., Ltd. He will continue in charge of the bridge and construction departments at 55, Broadway, London, S.W.1.

A Tribute to Ipswich Transport Officers.—At the opening of the new generating station of Ipswich Corporation, which includes a 12,500 kw. Lungstrom turbo-alternating set installed by the Brush Electrical Engineering Co., Councillor S. C. Grimwade, chairman of the Electric Supply and Transport Committee, said that the undertaking owed much to two former chairmen (Alderman E. C. Ransome and Councillor W. Reavell), to the former and present managers, Mr. F. Ayton and Mr. A. S. Black, and to a keen staff. Mr. Ayton is now joint managing director of Ransomes, Sims & Jefferies, Ltd., of Ipswich.

FINANCIAL.

The British Aluminium Co., Ltd.—It is proposed to pay a final dividend of 6 per cent. on the ordinary shares, making 10 per cent. for the year, leaving £35,559 to be carried forward.

The Bank Rate.—The Bank Rate was reduced on Thursday from 4 to 3½ per cent. This is the third reduction in six weeks and the sixth since October 30 last, when the rate was 6½ per cent. The new rate is the lowest since July, 1923.

The English Electric Co., Ltd.—At the adjourned meeting of the holders of the five and a half per cent. sinking fund first mortgage debentures of the English Electric Co., on March 18, the resolution sanctioning the reorganisation of the capital was unanimously carried.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended March 19 amounted to £82,380, an increase of £1,438 compared with the corresponding week of last year. The route length was 165.55 miles, as compared with 166.29 a year ago. From April 1 (the commencement of the financial year) to March 19 (50 3-7 weeks) the total receipts were £4,216,558, an increase of £78,395.

Municipal Transport Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended March 1 give total receipts of £401,156, or £30,041 more than in the corresponding week of last year. The aggregate receipts for 48 weeks amounted to £19,896,736, an increase of £966,420 over the corresponding period of last year.

Tilling-Stevens Motors, Ltd., report a profit of £82,008 for 1929, as against £81,105 for 1928. Appropriations proposed are £10,000 depreciation reserve, £8,500 taxation reserve, and £20,000 general reserve. The preference dividend for 1929 absorbs £17,412, and it is proposed to pay 15 per cent. for the year on ordinary shares. After providing for additional fees to directors of £1,050, the carry forward is increased from £12,808 to £19,211.

CONTRACTS.

Leeds Tramways Committee has ordered a Hammond power petrolling plant from the Equipment and Engineering Co., Ltd.

Leeds Corporation has accepted the tender of the Metropolitan-Vickers Electrical Co. for the installation of two 3,000 k.v.a. transformers.

Christopher Dodson, Ltd., have placed an order for 40 pairs of " Golden Glow " headlights with the Equipment & Engineering Co., Ltd.

The City of London Corporation has accepted the tender of Shelvoke & Drewry, Ltd., for the supply of two motor lorries at £982 each.

The Palestine Electric Corporation, Ltd., has placed an order for 5,000 low tension insulators and pins with the Equipment and Engineering Co., Ltd.

The Anglo-Argentine Tramways Co., Ltd., have placed an order for one " TA " type E. & E. electro-magnetic crack detector with the Equipment & Engineering Co., Ltd.

The Equipment and Engineering Co., Ltd., have received an order from the Research Department, Woolwich Arsenal, for one " TA " type E. & E. electro-magnetic crack detector.

Guy Motors, Ltd., have received the following orders:—Northampton Corporation, six 6-wheel double-deck omnibus chassis and three 26-seat saloon omnibuses; Great Yarmouth Corporation, five 35-seat saloon omnibuses; Hull Corporation, twelve 6-wheel double-deck omnibus chassis; Middlesbrough Corporation, two 32-seat saloon omnibuses.

Guy Trolley Omnibuses for Abroad.—The latest type of trolley omnibus built by Guy Motors, Ltd., Wolverhampton, is being placed in service in Italy and Belgium. One of the six-wheel type, seating 53 passengers, has lately been added to the Birmingham Corporation fleet. The vehicle was built throughout in the company's works and was delivered to Birmingham under its own power.

Great Yarmouth Corporation has placed a contract with Mr. B. G. Beech for the erection of offices at the tramway department at Caistor-road. Contracts for the supply of uniforms have been allotted as follow:—J. Compton, Sons & Webb, 100 uniforms for drivers and conductors, 30s. 10d. per uniform, and drivers' and conductors' caps 4s. 7d.; Rego Clothiers, inspectors' uniforms, 49s. 3d.; Leicester Hosiery Co., inspectors' caps, 5s. 6d.

The General Electric Co., Ltd., of London, has received an important order from the Union Construction Co., Ltd., for electrical equipment for the new high-speed tramcars they are constructing for the Uxbridge-road services of the London United Tramways. The order comprises 94 high-speed motors of 70 h.p. on the one-hour rating, 500 volts, 96 cam type controllers, and 48 sets of line switches with overload release. The motors are of unusually high capacity for the small diameter of driving wheel to be used, viz., 28 ins.

Glasgow Transport Committee has recommended acceptance of the following tenders in connection with the re-conditioning of 300 tramcars, the total amounting to £208,147:—Motors: General Electric Co., Ltd., and Metropolitan-Vickers Electric Co., Ltd. Controllers: English Electric Co., Ltd., and Metropolitan-Vickers Electric Co., Ltd. Roller bearing axle boxes: Ransome & Marles Bearing Co., Ltd., Hoffman Manufacturing Co., Ltd., and Skefko Ball Bearing Co., Ltd. Air brake equipment: Consolidated Brake and Engineering Co., Ltd., and Electro-Mechanical Brake Co., Ltd. Magnetic track brakes: Metropolitan-Vickers Electric Co., Ltd., and Electro-Mechanical Brake Co., Ltd. Truck forgings: Brush Electrical Engineering Co., Ltd., and P. & W. MacLellan, Ltd. Upholstered seats: Bennet Furnishing Co.

Digitized by Google

Bath Electricity Committee has placed an order with the Brush Electrical Engineering Co., Ltd., for one 7,000 kw. Brush-Lungstrom turbine alternator. This is the fifth set of this manufacture to be installed by Bath Corporation.

Contracts for "English Electric" Bodies.—Birmingham Corporation has placed a contract with the English Electric Co., Ltd., for forty double-deck top-covered omnibus bodies. These will be mounted on A.E.C. "Regent" chassis to seat 58 passengers, and will have safety glass throughout and stainless steel fittings. The value of the contract is £33,000. The English Electric Co. has also received an order from Newcastle Corporation for three double-deck, top-covered omnibus bodies, each seating 50 passengers. The seats in each saloon will be upholstered in moquette. The bodies will be mounted on A.E.C. "Regent" chassis.

BUSINESS NOTES.

Splintex Safety Glass, Ltd., of Splintex Works, South Wimbledon, London, S.W.19, informs us that their telegraphic address has been changed to "Splintex, Phone, London."

Metropolitan Railway Bill.—The Metropolitan Railway Bill has been passed by the Unopposed Bills Committee for the third reading. The Bill authorises a new electric railway between Stanmore and Wembley, at an estimated cost of £500,000.

Report of Economic Advisory Committee. 111 pp., 10 ins. × 6 ins. Maps, etc. Copies can be obtained from these offices on receipt of price (3s.).—THE TRAMWAY AND RAILWAY WORLD OFFICES, Amberley House, Norfolk-street, London, W.C.2.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

NAME.	Week ended	LATEST RETURN. 1929	1930	+ or —	AGGREGATE. Wks.	1929-30	+ or —
		£	£	£		£	£
Aberdare U.D.C.	Mar. 18	534	572	+ 38	50½	30,000	+ 3,004
„ Motor Buses	„ 18	250	275	+ 25	50½	13,172	+ 2,012
„ Total	„ 18	784	847	+ 63	50½	43,181	+ 5,016
Aberdeen Corp.	„ 12	4,311	4,597	+ 286	41½	202,606	+ 13,582
Ashton-u-Lyne Corp.	„ 8	832	820	— 12	49	44,447	+ 1,813
„ Motor Buses	„ 8	460	471	+ 11	49	23,638	+ 2,987
„ Trolley Buses	„ 8	287	267	— 20	49	13,724	— 718
„ Total	„ 8	1,759	1,558	— 21	49	81,809	+ 4,082
Ayr Corporation	„ 15	422	404	— 18	43	25,2 2	+ 1,446
Barrow Corporation	„ 8	537	551	+ 14	49	28,590	— 3,226
„ Motor Buses	„ 8	261	347	+ 86	49	18,712	+ 7,610
„ Total	„ 8	798	898	+ 100	49	47,302	+ 4,384
Belfast City	„ 14	10,873	10,759	— 114	49½	553,379	+ 83,174
„ Motor Buses	„ 14	985	1,344	+ 359	49½	56,.78	+ 36,112
„ Total	„ 14	11,858	12,103	+ 245	49½	609,757	+ 119,286
Birkenhead Corp.	„ 16	1,601	1,454	— 147	50	81,259	— 10,522
„ Motor Buses	„ 16	2,907	2,990	+ 83	50	174,308	+ 31,400
„ Total	„ 16	4,508	4,444	— 64	50	255,567	+ 20,878
Birmingham Corp.	„ 11	25,866	26,793	+ 925	49	1,343,631	+ 23,556
„ Motor Buses	„ 11	11,397	14,706	+ 3,309	49	669,958	+ 124,381
„ Trolley Buses	„ 11	537	568	+ 31	49	27,846	+ 969
„ Total	„ 11	37,802	42,067	+ 4,265	49	2,041,435	+ 148,906
Blackburn Corp.	„ 12	1,994	1,782	— 212	49½	94,683	— 5,347
„ Motor Buses	„ 12	Nil	324	+ 324	18½	6,267	+ 6,267
„ Total	„ 12	1,994	2,106	+ 112	49½	100,950	+ 920
Bradford Corporation	„ 15	14,509	14,367	— 142	50	739,021	— 40,355
Brighton Corporation	„ 16	2,017	2,109	+ 92	50	127,777	+ 4,100
Burnley Corporation	„ 15	2,932	2,852	— 80	—	...	...
„ Motor Buses	„ 15	632	686	+ 54	—	...	...
„ Total	„ 15	3,564	3,538	— 26	—	...	...
Burton-on-Trent Cpn.	„ 16	735	863	+ 128	50	27,565	+ 7,134
Bury Corporation	„ 16	2,039	1,704	— 335	50	98,249	— 9,845
„ Motor Buses	„ 16	316	892	+ 576	50	31,866	+ 13,648
„ Total	„ 16	2,355	2,596	+ 241	50	130,115	+ 3,803
Cardiff Corporation	„ 15	6,992	7,419	+ 427	49½	386,345	+ 11,750
Chatham and District	„ 13	978	1,022	+ 44	10	10,684	+ 798
Chesterfield Corp.	„ 17	1,881	1,964	+ 83	50	99,293	+ 3,894
Colchester Corp.	„ 19	461	541	+ 80	51	28,379	+ 5,347
Colne Corporation	„ 12	696	693	— 3	50	35,261	+ 302
Coventry Corporation	„ 16	2,085	2,014	— 71	50	107,004	+ 2,273
„ Motor Buses	„ 16	1,472	1,746	+ 274	50	83,998	+ 21,866
„ Total	„ 16	3,557	3,760	+ 203	50	191,000	+ 24,139
Darlington Corp.	„ 15	911	1,051	+ 140	49½	50,310	+ 1,687
Derby Corporation	„ 15	2,355	2,351	— 4	50	124,457	— 3,010
„ Motor Buses	„ 15	586	866	+ 280	50	38,851	+ 15,779
„ Total	„ 15	2,941	3,217	+ 276	50	163,308	+ 12,769
Dover Corporation	„ 15	312	346	+ 34	50	20,165	+ 786
Dundee Corporation	„ 11	3,263	3,303	+ 40	42½	149,581	+ 5,631
East Ham Corp.	„ 15	2,271	2,287	+ 16	49½	115,025	+ 5,479
Edinburgh Corp.	„ 8	13,110	13,471	+ 361	42½	610,772	+ 26,540
„ Motor Buses	„ 8	3,020	3 425	+ 405	42½	148,380	+ 17,480
„ Total	„ 8	16,130	16,896	+ 766	42½	759,152	+ 44,020
Exeter Corporation	„ 19	787	756	— 31	51	42,952	+ 625
Glasgow Corporation	„ 15	42,612	43,784	+ 1,172	41	1,821,730	+ 29,968
„ Motor Buses	„ 15	4,982	7,982	+ 3,000	41	259,057	+ 128,696
„ Total	„ 15	47,594	51,766	+ 4,172	41	2,080,787	+ 158,664
Gloucester Corp.	Feb. 26	460	621	+ 161	47½	28,847	+ 2,789
Grimsby Corporation	Mar. 15	1,26[illegible]	1,404	+ 138	50	73,109	+ 6,981
Halifax Corporation	„ 11	4,173	4,998	+ 825	49½	234,823	+ 22,199
Huddersfield Corp.	„ 15	6,083	5,934	+ 149	50	307,152	+ 4,894
Hull Corporation	„ 15	5,771	5,765	— 6	50	302,305	+ 1,800
„ Motor Buses	„ 15	1,247	1,418	+ 171	50	71,335	+ 9,516
„ Total	„ 15	7,018	7,183	+ 165	50	373,640	+ 11,316
Ilford Corporation	„ 15	1,435	1,477	+ 42	49½	74,997	+ 1,743
Ipswich Corp. Trol.Bus	„ 15	1,131	1,225	+ 94	50	64,294	+ 4,506
Isle of Thanet	„ 12	381	347	— 34	10½	3,525	+ 230
Kilmarnock Corp.	„ 15	417	456	+ 39	43½	20,775	+ 1,523
Lancashire Un.	„ 9	2.319	2,170	— 149	9½	21,302	— 435
„ Motor Buses	„ 9	4,024	4,597	+ 573	9½	44,146	+ 8,018
Leeds Corporation	„ 15	18,749	19,099	+ 350	49½	978.035	+ 36,016
Leicester Corp.	„ 15	7,887	8,465	+ 578	50	422,428	+ 22,048
Lincoln Corp.	„ 16	806	848	+ 42	50	46,093	+ 2,031
Liverpool Corp.	„ 15	29,139	28,780	— 359	49½	1,500,853	+ 31,254
London County Coun.	„ 19	80,942	82,380	+ 1,438	50½	4,216,558	+ 78,395
Luton Corporation	„ 12	350	378	+ 28	+91	19,982	+ 1,357
Maidstone Corp.	„ 13	192	Nil	— 192	49½	8,637	— 3,895
„ Motor Buses	„ 13	244	247	+ 3	49½	15,569	+ 4,358
„ Troiley Buses	„ 13	268	503	+ 235	49½	16,010	+ 2,788
„ Total	„ 13	704	750	+ 46	49½	40,216	+ 3,251
Manchester Corp.	„ 8	33,644	34,000	+ 356	49	1,712,435	+ 21,070
„ Motor Buses	„ 8	4,575	5,571	+ 996	49	245,439	+ 37,740
„ Total	„ 8	38,219	39,571	+ 1,352	49	1,957,874	+ 58,810

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS—*Continued.*

NAME.	Week ended	LATEST RETURN. 1929	1930	+ or —	AGGREGATE. Wks.	1929-30.	+ or —
		£	£	£		£	£
Middlesbrough Corp.	Mar. 11	1,121	1,143	+ 22	49½	55,979	— 203
„ Motor Buses	„ 11	456	572	+ 116	49½	26,389	+ 4,147
„ Total	„ 11	1,577	1,715	+ 138	49½	82,368	+ 3,944
Newcastle-on-Ty. Corp	„ 15	8,865	8,654	— 211	50	487,685	+ 20,477
„ Motor Buses	„ 15	1,804	2,168	+ 364	50	102,152	+ 10,305
„ Total	„ 15	10,669	10,822	+ 153	50	580,837	+ 30,782
Newport Corporation	„ 8	665	745	+ 80	49	37,474	+ 2,755
„ Motor Buses	„ 8	1,608	1,602	— 6	49	82,521	+ 558
„ Total	„ 8	2,273	2,347	+ 74	49	119,995	+ 3,313
Northampton Corp.	„ 14	1,269	1,068	— 201	49½	55,500	— 15,795
„ Motor Buses	„ 14	354	661	+ 307	49½	33,373	+ 17,360
„ Total	„ 14	1,623	1,729	+ 106	49½	88,873	+ 1,565
Nottingham Corp.	„ 13	6,321	5,687	— 634	49½	321,327	— 11,403
Motor Buses	„ 13	2,181	3,090	+ 909	49½	127,436	+ 31,068
„ Trolley Buses	„ 13	563	1,184	+ 621	49½	31,284	+ 3,456
„ Total	„ 13	9,065	9,961	+ 896	49½	480,047	+ 23,121
Oldham Corporation	„ 15	3,536	3,445	— 91	51	182,242	— 14,662
„ Motor Buses	„ 15	2 004	1,858	— 146	51	102,556	+ 27,701
„ Total	„ 15	5,540	5,303	— 237	51	284,798	+ 13,039
Plymouth Corp.	„ 15	3,343	3,284	— 59	49½	184,958	— 2,993
„ Motor Buses	„ 15	1,779	2,100	+ 321	49½	101,328	+ 15,382
„ Total	„ 15	5,122	5,384	+ 262	49½	286,286	+ 12,389
Portsmouth Corp.	„ 15	5,107	5,661	+ 554	49	321,137	+ 21,186
Preston Corporation	„ 12	1,622	1,566	— 56	49½	84,683	+ 1 063
„ Motor Buses	„ 12	440	485	+ 45	49½	24,698	+ 3,054
„ Total	„ 12	2,062	2,051	— 11	49½	109,381	+ 4,117
Rawtenstall Corp.	„ 16	803	763	— 40	50	42,146	— 1,992
„ Motor Buses	„ 16	484	528	+ 44	50	26,296	+ 3,650
„ Total	„ 16	1,287	1,291	+ 4	50	68,442	+ 1,658
Reading Corporation	„ 13	1,488	1,470	— 18	50	75,913	+ 694
„ Motor Buses	„ 13	837	877	+ 40	50	45,958	+ 3,013
„ Total	„ 13	2,325	2,347	+ 22	50	121,871	+ 3,707
Rochdale Corp.	„ 12	2,776	2,652	— 124	...	139,718	— 12,792
„ Motor Buses	„ 12	1,295	1,647	+ 352	...	77,931	+ 12,610
„ Total	„ 12	4,071	4,299	+ 228	...	217,649	— 182
Rotherham Corp.	„ 17	2,425	2,601	+ 176	51	140,088	+ 12,260
Salford Corporation	„ 16	10,569	10,897	+ 328	50	563,106	+ 39,078
Sheffield Corp.	„ 15	19,886	20,214	+ 328	50	1,047,141	+ 37,821
Southampton Corp.	„ 12	3,094	3,154	+ 60	50	169,393	+ 9,321
„ Motor Buses	„ 12	646	848	+ 202	50	40,987	+ 11,023
„ Total	„ 12	3,740	4,002	+ 262	50	210,380	+ 20,344
Southend-on-Sea Corp.	„ 19	1,802	1,903	+ 101	49½	119,357	+ 1,524
Southport Corp.	„ 15	1,394	1,430	+ 36	49½	83,199	+ 761
St. Helens Corp.	„ 11	2,062	2,108	+ 46	49½	101,351	+ 6,819
Sunderland Corp.	„ 16	2,137	2,274	+ 137	50	121,199	+ 5,626
Swindon Corp.	„ 12	599	905	+ 306	49½	41,182	+ 12,224
Wallasey Corp.	„ 15	1,213	1,068	— 145	49½	63,834	— 35,956
„ Motor Buses	„ 15	1,054	1,774	+ 120	49½	102,668	+ 54,454
„ Total	„ 15	2,467	2,842	— 25	49½	166,502	+ 18,498
Walsall Corporation	„ 9	3,261	3,581	+ 320	49	170,517	+ 15,403
Walthamstow Corp.	„ 15	2,216	2,373	+ 157	50	121,459	+ 9,060
Warrington Corp.	„ 13	901	890	— 11	50	44,676	— 969
„ Motor Buses	„ 13	441	467	+ 26	50	23,026	+ 3,471
„ Total	„ 13	1,342	1,357	+ 15	50	67,702	+ 2,502
West Ham. Corp.	„ 13	6,853	6,156	+ 303	49½	303,380	+ 27,084
Wolverhampton Corp.	„ 9	Nil	Nil	Nil	49	Nil	— 15,958
„ Motor Buses	„ 9	2,616	2,345	— 271	49	134,451	+ 15,274
„ Trolley Buses	„ 9	3,005	3,583	+ 578	49	166,774	+ 27,583
„ Total	„ 9	5,621	5,928	+ 307	49	301,225	+ 26,899
York Corporation	„ 12	881	943	+ 62	50	51,683	+ 646
„ Motor Buses	„ 12	354	486	+ 132	50	21,461	+ 5,216
„ Total	„ 12	1,235	1,429	+ 194	50	73,144	+ 5,862

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

NAME.	Week or M'th.	LATEST RETURN. 1928-29.	1929-30.	AGGREGATE. Wks. or *Ms.*	1929-30.	In. or Dec.
Anglo-Argentine	Mar. 18	£90,545	£84,705	11 w	£831,544	— £31,812
Brazilian Traction $	Jan.	3,892,833	3,862,089	1 m	3,862,089	— 30,744
British Columbia $	Jan.	1,256 252	1 354,314	7 m	8,605,787	+ 498,897
Buenos Aires Lacroze	Mar. 16	13,235	12,615	37 w	432,263	— 26,608
Burma E. Sup. Co. Rs.	Jan.	64,372	62,533	6 m	375,870	— 26,062
Calcutta ... Rs.	Mar. 15	134,753	117,779	10½ w	1,324,346	— 102,970
Cape Town ...	Feb.	28,274	27,479	...	...	...
Carthagena & Herrerias	Feb.	972	1,286	2 m	2,637	+ 933
Durban ...	Jan.	23,916	24,577	6 m	145,553	+ 2,767
East India ...	Feb.	3,055	3,127	7 m	26,662	+ 797
Kalgoorlie ...	Nov.	1,721	1,643	11 m	18,817	— 369
La Plata ...	Dec.	10,300	10,327	12 m	116,149	+ 2,604
Madras (2 weeks) Rs.	Mar. 16	44,921	56,183	10 w	236,854	+ 22,097
Para ...	Feb.	14,007	13,628	3 m	42,671	+ 276
Port Elizabeth ...	Feb.	7,478	7,110	...	...	...
Rangoon ... Rs.	Feb.	114,300	140,130	2 m	295,210	+ 64,075
Shanghai ... $	Feb.	294,708	322,473	2 m	685,873	+ 71,945
Singapore ... ...$	Feb.	117,000	128,000	5 m	655,000	+ 92,000
Winnipeg ... ...$	Jan.	607,966	628,979	1 m	628,979	+ 21,013

RAILWAY RECEIPTS.

11th Week ended Mar. 16th	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week.	Inc. or Dec. to Date.
G.W.R.	189,000	— 10,000	356,000	— 22,000	545,000	— 32,000	+ 13,000
L.M.S.R.	429.000	— 23,000	881,000	— 56,000	1,310,000	— 79,000	— 205,000
L.N.E.R.	296,000	— 20,000	737,000	— 14,000	1,033,000	— 34,000	+ 92,000
S.R.	259,000	— 1,000	112,000	— 11,000	371,000	— 12,000	+ 67,000
Totals	1,173,000	— 54,000	2,086,000	— 103,000	3,259,000	— 157,000	— 33,000

ELECTRIC RAILWAYS.

NAME.	Week Ended.	LATEST RETURN. 1929.	1930.	+ or —	AGGREGATE. 1930.	+ or —
LONDON UNDERGROUND						
Common Fund Cos.	Mar. 15	279,300	295,900	+ 16,600	3,138,300	+ 310,900
Lond. & Sub. Group	„ 15	39,700	42,600	+ 2,900	454,300	+ 58,600
METROPOLITAN RAILWAY	„ 15	35,600	36,100	+ 500	399,300	+ 16,800
LIVERPOOL OVERHEAD	„ 16	1,556	1,405	— 151	16,558	— 623
MERSEY RAILWAY	„ 15	4,671	4,801	+ 130	52,658	+ 2,006

Digitized by Google

THE
Tramway AND Railway World

FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.
Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates—
FOR THE UNITED KINGDOM—Twenty-five shillings per annum.
FOR ALL PLACES ABROAD—Twenty-five shillings per annum. Postage to Canada, 6s.; to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS

LONDON, MARCH 29, 1930.

OMNIBUS WEIGHT CONCESSION.

The Minister of Transport, as mentioned in last week's issue, has acceded to the request for an increase of half a ton in the maximum weight of 9 tons permitted for motor omnibuses. Mr. Morrison met representatives of the Society of Motor Manufacturers and Traders and of the municipal transport undertakings, and announced that the extra half-ton would be granted forthwith. The formal publication of the alteration to the Heavy Motor Car Amendment Order and the public vehicles licensing regulations will set the seal not to a concession, but to a memorable victory in the progress of double-deck omnibus construction. It is understood that the Minister informed the deputation that two of the factors that influenced his decision were the developments in the six-cylinder engine and in the use of the pneumatic tyre. The latter improvement is an especially important one from the point of view of lessened road wear, to say nothing of quietness of running and the comfort of the passenger. An indication of the importance attached by the Ministry of Transport to the change from the solid to the air tyre was given when a reduction was made in the rate of taxation imposed on pneumatic tyred commercial vehicles. We have frequently during the past twelve months pointed out the need for a higher weight limit than 9 tons, and have shown that designers and builders of chassis and bodies have acquitted themselves admirably in introducing improvements, despite the handicap of the inadequate maximum weight. On certain makes of chassis, however, from two to four seats have had to be sacrificed in vehicles that would otherwise have accommodated 54 persons. That total is generally accepted as the most satisfactory one for operators and passengers, particularly as it enables passengers to be taken up and discharged with expedition during the peak hours. The importance of the revised regulation was emphasised by Mr. Harold E. Carter (chairman) at the annual meeting of Tilling-Stevens Motors, Ltd., on Tuesday last. Last year the company introduced the new petrol-electric chassis, which has a weight of under 9 tons, when fitted with body and carrying 52 passengers. Customers who had operated the original type requested the company to submit vehicles of the new type for trial. These gave satisfaction, but later on the question of fitting four-wheel brakes was raised and also the additional luxury in upholstery required by passengers. To comply with those requirements would entail exceeding the maximum weight of 9 tons, but thanks to the grant of the additional 10 cwts., the improvements can now be effected. How beneficial the additional allowance should prove is indicated by the urgent plea for the reform that was made last year at the Olympia conference between municipal operators and manufacturers.

GLASGOW OMNIBUS CONDITIONS.

A conference between the magistrates of Glasgow, as the licensing authority of the city, and representatives of the owners of private omnibuses was held on March 25, in the Burgh Hall, to hear the owners of omnibuses who are dissatisfied with regulations recently imposed on their services within the city boundaries.

Mr. T. Muir Wilson, representing the Scottish Motor Traction Co., Ltd., the Glasgow General Omnibus Company, Ltd., and other omnibus companies, stated that his clients viewed the conditions with considerable alarm and great disfavour. Under the Act of 1929 provision was made to the effect that the omnibuses operated by the Corporation Transport Department were to be deemed stage carriages and had to come before that Court for licences, and to be under the Court's control. Under this Act, which was promoted to give them additional control over all stage carriages, they had placed private omnibus owners in a much worse position than ever before, and in a position which the legislature never intended they should be placed.

The city traffic, Mr. Wilson said, would be practically for the Glasgow Corporation omnibuses. He had advised his clients that in making that condition, the Court was acting *ultra vires*. That day Glasgow Corporation were promoting a Bill in which they sought to have a monopoly condition within the city, and to have certain monopoly rights outside the city. He was convinced that that Court was not entitled, without powers, to impose such conditions as they had done, and he suggested that they should scrap Condition 1, and wait until Parliament decided whether the Corporation of Glasgow was entitled to a monopoly traffic, or otherwise. The L.M.S. Railway Company, said their agent, had power to run omnibuses in any district to which their system had access, but the condition in the new regulations that they should not be entitled to come into their own station (St. Enoch's) with their own omnibuses was not only a tremendous but a preposterous proposition. Such a proposal, said the agent, went right in the teeth of the Parliamentary measure of 1928, which granted omnibus powers to the railways. Once the railway company had started an omnibus service they would not withdraw it; if they did they were liable to a fine of £5 per day.

After further discussion, the chairman announced that the questions raised would receive the careful attention of the Court, with a view to an amicable settlement.

TORQUAY TRAMWAYS COMPANY'S "LATE" BILL.

An "out-of-time" Bill has been deposited by Torquay Tramways Co., Ltd., in the Private Bill Office of the House of Commons. Subject to assent being given by the Standing Orders Committees of both Houses, the Bill will be introduced into Parliament this session. The preamble recites that under powers granted by Parliament in 1904 and 1909 the company has constructed and is now working tramways in Torquay and Paignton, but it is expedient that the company shall be authorised to discontinue the existing tramways and to run trolley omnibuses along the streets in which there are tramways and along other routes.

The Bill will empower the company to use trolley vehicles along the routes of the existing tramways and to discontinue the "whole or any part of any of the existing tramways as soon as practicable after they shall have provided equipment for the working of trolley vehicles." One month's notice to discontinue the tramways must be given to the road authority. In any case, the company is required to discontinue the whole of the existing tramways prior to the expiration of two years after the passing of this Act, unless the period is extended by the local authorities. The fare for every passenger conveyed on the trolley vehicles is not to exceed 1d. per mile, but in no case shall the company be bound to charge a less sum than 1½d., provided that the charge for a stage of six-tenths of a mile shall not exceed 1d. for each stage.

Powers are contained in the Bill to empower the Corporation of Torquay and the Urban Council of Paignton to purchase the undertaking on December 31, 1950, or in any subsequent seventh year at its fair market value, but without any addition in respect of compulsory purchase. If the company proposes to sell the undertaking to any company or person under the provisions of the Tramways Act, 1870, it is provided that it shall be first offered to one or both of the public authorities.

The two Committees, on March 25 and 26, recommended the suspension of the Standing Orders.

Digitized by Google

L.N.E.R. ELECTRIFICATION SCHEME.

Sir Ralph Wedgwood, chief general manager of the L.N.E. Railway, gave evidence yesterday (Friday) against the proposed extension of the Piccadilly tube from Finsbury Park to Cockfosters, near Barnet. He stated that the directors of the L.N.E.R. decided at their last meeting to electrify the main lines as far as Hertford and Welwyn Garden City, and three branch lines to Edgware, Alexandra Palace and New Barnet, subject to an adequate Government grant and satisfactory arrangements for terminal accommodation in the city. The estimated cost would be £3,750,000, with an addition of £650,000 for widening three tunnels. If the tube railway was extended as proposed, it would attract a large amount of L.N.E.R. traffic.

THE ROAD TRAFFIC BILL.

The Standing Committee of the House of Commons on the Road Traffic Bill sat on Thursday under the chairmanship of Mr. Leif Jones. Various clauses with reference to motoring offences were passed.

On Clause 14, which prohibits the driving of motor vehicles on commons and moors, Mr. Morrison said that in the vast majority of cases under this clause, a fine of £5 would be adequate, but he agreed to insert an amendment reducing the penalties to a fine not exceeding £5 for the first offence and £10 for a second offence.

After considering clause 15, the Committee adjourned until Tuesday.

TRANSPORT CO-ORDINATION AT BRIGHTON.

Brighton and Hove Corporations and Thomas Tilling, Ltd., have practically agreed on a joint transport scheme for both towns and the surrounding district. It is proposed to form a company with an approximate capital of £780,000, which will be controlled by a board consisting of representatives from the three parties concerned. It is stated that the capital and representatives of the board will be apportioned as follow :—

Thomas Tillings, Ltd., capital £350,000, and two representatives.

Brighton Corporation, capital £300,000, and two representatives.

Hove Corporation, capital £130,000, and one representative.

The suggested joint transport board would be prohibited from substituting omnibuses for tramcars or from discontinuing any tramway service without the consent of the Brighton Corporation. The scheme will, of course, require sanction by Parliament.

MISCELLANEOUS NEWS AND NOTES.

Barking Council has sanctioned the borrowing of £7,950 for the reconstruction of the tramways in East-street along Bridge-road.

Letter Boxes on Belfast Omnibuses.—Letter boxes are to be provided on four omnibus routes in Belfast, in order to afford residents in rural areas a later hour of posting.

Edinburgh to Purchase more Omnibuses.—In order to meet increasing traffic demands, Edinburgh Transport Committee has decided that twelve more omnibuses shall be obtained.

Proposed Joint Omnibus Purchase.—Bury General Purposes Committee has recommended the Council to purchase in conjunction with the Lancashire United Transport and Power Company the omnibus undertaking of William Lees, Ltd., of Radcliffe.

Storm Stops Chicago Traffic.—Chicago has just suffered from the worst storm recorded in the city. When it ended at midnight on Wednesday over 19 ins. of snow had fallen. Tramcar traffic was gradually impeded, and at night 1,500 cars were left in the streets. Hundreds of motor cars had to be abandoned in the city and districts outside.

Cork Tramways.—The "Cork Examiner" has received a letter from the Cork Electric Supply Company stating that the tramways will continue to be operated by the company, although the Electricity Supply Board, pursuant to the Free State Electricity Supply Act, 1927, proposes to acquire compulsorily the company's electric lighting undertakings.

Omnibus Licences and Wages at Mansfield.—At a meeting of the Licensing Sub-Committee of Mansfield, Mr. S. Whyld asked whether the sub-committee could enforce the payment of trade union rates of wages to drivers and conductors. He mentioned the case in which a woman employee was alleged to be paid 17s. 6d. for a week of 50 to 60 hours. The Mayor (Alderman Mrs. E. Wainwright) said she hoped that the matter would be discussed at the next meeting.

German Visitors to Trolley Omnibus Systems.—A delegation from Germany, comprising twenty-three transport officials and representatives of transport engineering firms, visited Chesterfield on Monday and inspected the Corporation trolley omnibus undertaking. The party afterwards proceeded to Sheffield, and on Tuesday they were at Rotherham, Mexborough and Doncaster. Wednesday was spent in an inspection of the Bradford system. The party returned to Germany on Friday.

Leicester Corporation Bill.—After a two-days' hearing of the Leicester Corporation Bill, a Select Committee of the House of Lords, on March 26, struck out a clause under which power was sought to construct bodies for omnibuses and trolley vehicles employed in the transport undertaking. The remainder of the Bill providing for the substitution of trolley omnibuses for tramways on any route within the city, and for further powers in reference to the tramways undertaking, was ordered for report.

Bradford Trolley Omnibus Service.—The new trolley omnibus service between Bradford and Saltaire, via Thackley, has been opened. The total length of the route is 6¼ miles.

The Goodyear Tyre Factory.—Mr. C. Slusser, vice-president and factory manager of the Goodyear Tyre and Rubber Co., U.S.A., is paying a brief visit to this country to inspect the progress made by the Goodyear factory at Wolverhampton. We understand that Mr. Slusser is much pleased with the all-round efficiency displayed by the workmen at Wolverhampton, where some 1,500 men are employed in making the all-weather tread tyre.

A Manchester Tramway Not to be Constructed.—The Corporation Transport Committee has decided not to construct tramways in Mauldeth-road West (from Princess-road to Barlow Moor-road) and Broadway, Moston. A reserved area had been provided in each road for the ultimate construction of a sleeper track. A report presented by the general manager stated that statutory authority for the construction of these lines had not been applied for, and having regard to the present development of transport, he was of opinion that such tramways should not be constructed.

Darlington's Trolley Omnibus System.—The new extension of the trolley omnibus system at Darlington from Market Hall to Geneva-road West was inspected by Col. Anderson on behalf of the Ministry of Transport on March 3. This new route, which is now opened for service, forms the sixth extension of the original Darlington tramway system, which was converted for the operation of trolley vehicles in December, 1925. The work of conversion of all new extensions to the system has been carried out under contract by Messrs. Clough, Smith & Co., Ltd., 36, Victoria-street, London, S.W.1.

North London Tube Extension.—A Select Committee of the House of Commons on Wednesday began consideration of the Bill promoted by the London Underground Group for extensions of the tube railway from Finsbury Park to Cockfosters, near Barnet. The Bill was opposed by the L.N.E.R. on the ground that it would interfere with a scheme for the electrification of the suburban lines of the Great Northern section and to secure through transit to the City over two other railways. It was admitted by Mr. F. Pick (managing director of the Group) that without a Government subvention the line would not be constructed.

Transport Conference at Bombay.—Under the presidency of Mr. C. N. Moberley, general manager of the Bombay Electric Supply and Tramways Co., a conference of electricity supply and tramway companies in India and Burma has been held at Bombay for the purpose of promoting the use of electricity and to improve transportation for the general benefit of the community. On the transport side there were discussions on the tramcar of the future and the need for elimination of competition that serves no useful purpose. A model was exhibited of a double-deck car, with a low central platform having power-operated doors and vestibule ends. The opinion of the conference was that each company must decide what is the most suitable unit in relation to local conditions. A resolution was passed asking for the formation of traffic authorities, representative of the local authorities, the police, the transportation agencies, and the pedestrian.

The Channel Tunnel Report.—The report of the Channel Tunnel Committee, which was issued on March 15 (Cmd. 3514, 110 pp., 3s.), contains a statement of the procedure adopted by the Committee in reviewing the subject, an historical survey of the project, estimated cost of construction and a study of the traffic problems involved. On the available evidence, it appears probable that all engineering difficulties could be successfully overcome. An element of doubt will remain until the proposed pilot tunnel, estimated to cost £5,600,000, has been driven. The cost of the traffic tunnels is estimated at about £25,000,000. It is considered that on economic grounds the work should be carried out by private enterprise. In the House of Commons on March 26, in answer to a question, the Prime Minister said that the proceedings of the Committee were confidential and the evidence received by it was submitted on the understanding that it would not be made public. It would not, therefore, be published.

Charing Cross Bridge.—At the meeting of the London County Council on March 25, Sir Percy Simmons said that the central consideration of the Charing Cross Bridge Bill was the construction of a new bridge for traffic across the Thames at Charing Cross. The Royal Commission presided over by Lord Lee, recommended that Waterloo Bridge should not be demolished, but should be reconstructed for four, and not six lines of traffic, the corrollary being that as there were not to be six lines of traffic, there should be a bridge constructed at Charing Cross capable of carrying road traffic. The two matters were interlocked. In reply to a question, Sir Percy Simmons said that the Government offered a grant of 75 per cent. from the Road Fund of the approved cost of reconstructing the Waterloo Bridge in the manner recommended by the Royal Commission, and accepted the position that the preservation of Waterloo Bridge involved the construction of a road bridge at Charing Cross. The Minister of Transport and the London County Council had acted together throughout on the whole matter. The Southern Railway did not want to adopt the Lion Brewery site scheme, and only did so as a result of pressure from the Government. The underground railway and omnibus facilities for getting from the new station to other parts of London would be better than those provided at the present terminus. The L.C.C. were giving the railway about two and a half times as much space as they had now, and were paying them £2,126,000. Under the present scheme about one hundred yards of York-road would be covered in.

Digitized by Google

PERSONAL.

Mr. G. H. Peake, deputy chairman of the Yorkshire Electric Power Co., has been appointed chairman to the company, in succession to the late Mr. A. G. Lupton.

Mr. H. C. W. Ludgate, general manager of Morecambe Corporation omnibus department, has been appointed general manager of Swindon Corporation transport department.

Mr. T. Medcalf, passenger transport manager of Swindon Corporation, who recently retired after 27 years' service, has been presented by the staff with a silver salver and a bookcase.

Mr. S. G. Davy, of Exeter, has been appointed traffic superintendent of the Derby Corporation Tramways, subject to confirmation of the Town Council. Previous to going to Exeter, Mr. Davy held an appointment at Rotherham.

Mr. T. B. Keep, for some time associated with Dennis Bros., Ltd., and for several years a director of Rootes, Ltd., has resigned his position with the latter company and has been appointed director and general manager of Commer Cars, Ltd.

Mr. W. R. Shephard, O.B.E., managing director of Tilling-Stevens Motors, Ltd., has been appointed president of the Motor Trade Association. Mr. Shephard was senior vice-president of the Association, which he represented at the World Transport Congress in New York in 1926, and at Rome in 1928.

Mr. W. Wolsey, presiding at the annual meeting of Thomas Tilling, Ltd., stated that he had consented to follow the late Mr. Richard S. Tilling as chairman only until June 30 next. From that date the board had appointed Mr. J. F. Heaton as chairman. Mr. Heaton is now deputy chairman and joint managing director.

Mr. Cyril F. Dennis, of Messrs. W. B. Dick & Co., Ltd., delivered an address on Russia before the Nottingham Rotary Club on Monday, March 24. Mr. Dennis outlined impressions received while on a recent visit to Russia, and in the course of his remarks said that Russia must help herself before she can be assisted. The present pathetic position in that country was due to two forms of extremist Government—the Czarist and the Communist. People considered that they had escaped from the tyranny of the Czars, but the present system was a poor substitute.

Sir Harry Haward, who was one of the original five Electricity Commissioners appointed in 1919, retires from the office of Commissioner at the end of this month, on completion of his extended term of office. Before his appointment as Commissioner, Sir Harry Haward was Controller of the London County Council for 26 years. Arrangements have been made by the Commissioners with the approval of the Minister of Transport, under which Sir Harry Haward will act in a consultative capacity, in order that the Government and Commissioners may continue to have the benefit of his experience and assistance in financial questions.

Mr. A. Daggett, who recently retired from the position of traffic superintendent of Leeds City Tramways after 28 years' service, has been presented by the traffic employees with a "grandmother" clock, a silver cigarette case, and a gold watch. The presentation took place at the Tramways Club on March 19, when Mr. Graham Ford, vice-chairman of the Tramways Committee, paid a tribute to the long and valuable service which Mr. Daggett had rendered to the department, and to the loyalty of the men. Mr. Daggett suitably replied, thanking Mr. Horsfield, the general manager, and the Tramways Committee for the consideration which had always been shown to him.

Mr. Douglas Hays has resigned his position as general manager and director of the Scottish General Omnibus Co., Ltd., and other omnibus companies in Scotland on their acquisition by the group of associated interests of the Scottish Motor Traction Co., Ltd. Mr. Hays was connected with the Falkirk Tramways as general manager, engineer, and secretary at the date of their inception in 1905. Early in 1913 the tramway company operated its first motor charabanc, and from this origin the Scottish General Omnibus Co., Ltd., was developed and quickly expanded to the present fleet of over 300 vehicles operating from seven garages from Larbert to Elgin. Mr. Hays has accepted an appointment to control the management of a large group of transport undertakings in England owned by the Midland Counties Electric Supply Co., Ltd.

FINANCIAL.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended March 26 amounted to £81,535, a decrease of £2,190 compared with the corresponding week of last year. The route length was 165.55 miles, as compared with 166.29 a year ago. From April 1 (the commencement of the financial year) to March 26 (51 3-7 weeks) the total receipts were £4,298,508, an increase of £76,380.

Municipal Transport Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended March 8 give total receipts of £409,612, or £21,219 more than in the corresponding week of last year. The aggregate receipts for 49 weeks amounted to £20,313,285, an increase of £983,195 over the corresponding period of last year.

Yorkshire (West Riding) Electric Tramways, Ltd.—For the year ended December 31, 1929, the net income amounted to £26,854 (against £28,133), after providing for debenture interest. The preference dividend, which was the same as a year ago, required £11,102. The sum of £1,040 was set aside for reconstruction of tramway; £14,962 against £11,144, provision for expired capital outlay; £760 against £1,010 carried forward. The decrease in receipts of £6,381 as compared with the previous year is attributed to trade depression.

Dublin United Tramways Co.—At the annual meeting Mr. W. Hewat (chairman) stated that during the year there was a further increase in omnibus competition and the public were being catered for in excess of its requirements, with inevitable loss to both forms of transport. The Electricity Board had required the company to change over from their own generating station and take power from the national supply. The arrangements for the change were practically complete.

Isle of Thanet Electric Tramways and Supply Co.—The report for the year shows that the revenue amounted to £179,036, of which £90,033 was from the tramway department. The expenses were £105,126, leaving a balance on working of £73,910. Deducting interest, sinking fund charges, income tax, and £30,000 transferred to general reserve and depreciation account, there was a balance (including £6,203 brought forward) of £31,277. A dividend on preference shares required £16,920. A dividend of 4 per cent. is to be paid on the ordinary shares, leaving £8,137 to be carried forward. There was an increase in revenue of £7,173, and of £6,679 in expenses compared with the previous year.

Torquay Tramways Co.—At the meeting of Torquay Tramways Co., Ltd., held in London on Wednesday, Mr. H. T. Barnett, chairman, said that two items of special interest were the sale of half the ordinary share capital of the Devon General Omnibus and Touring Co., to the G.W.R., and the S.R. Companies, out of the profits of which shareholders received 6s. per share, free of tax, in August last. The other item of special interest was the proposed substitution of the trolley vehicle system for the tramways. The Corporation and the Company had agreed that the substitution of the trolley vehicle system is the most desirable solution of the traffic difficulties in the main streets. An agreement had been arrived at with the Corporation, and negotiations with the Paignton Urban Council pointed to an early settlement, so that the support of the local authorities would be assured, and in all probability an unopposed Bill would be the result. The meeting unanimously approved of the Company's Bill.

CONTRACTS.

The Admiralty has placed a contract with Siemens Electric Lamps and Supplies, Ltd., for several thousand Siemens special battery signalling lamps.

Croydon Tramways Committee has recommended the acceptance of the tender of the Cargo Fleet Iron Co., Ltd., for the supply of 50 tons of tramway rails at £11 8s. per ton.

The London & North-Eastern Railway have placed a contract with Siemens Electric Lamps & Supplies, Ltd., for 12 months' supplies of Siemens' gasfilled vacuum and carbon filament lamps.

Rochdale Tramways Committee has ordered a 38-110 h.p. Crossley 50-seat double-decker omnibus. This vehicle is similar to the Crossley vehicles in operation in Manchester and Cardiff, and is of the standard "Lowbridge" type. The overall height is less than 13 ft.

Manchester Transport Committee has placed contracts as follow:—Vulcan Motor and Engineering Co. (1909), Ltd., Southport, 15 single-deck omnibus bodies; Leyland Motors, Ltd., Leyland, 15 single-deck omnibus chassis; Crossley Motors, Ltd., Manchester, 15 single-deck omnibus chassis.

Seats for Tramcars.—Manchester Tramways Committee has accepted the tender of "Nesta," Ltd., Brunswick-square, High-road, London, N.17, for 100 sets of upholstered seats for the lower saloon of bogie tramcars, and that of Siddall & Hilton, Ltd., Sowerby Bridge, Yorkshire, for 15 sets of upholstered seats for motor omnibuses.

Tasmania Power Station Plant.—As agents for the English Electric Co., Ltd., London, a contract has been placed with Siemens (Australia) Pty., Ltd., by the Hydro Electric Department, Tasmania, for the water-driven turbo units and automatic switchgear for the Shannon River power station. A great part of the machinery will be manufactured in England.

Big Order for A.E.C. Coaches.—Timpson & Sons, Ltd., of London and several South Coast towns, are adding to their large fleet of coaches and omnibuses ten 21-seat de luxe all-weather coaches and thirty-one 31-seat coaches of the Regal type manufactured by the Associated Equipment Co. The Regal vehicles incorporate the Walman sliding head, which is operated from the driver's seat.

Pinkston Power Station, Glasgow.—In alluding in a recent issue to the contract placed by the Glasgow Corporation for Pinkston Power Station the name of the company which had received the order was incorrectly given. The award was made to the General Electric Co., Ltd., and provides for the supply of 6,600-volt 25-cycle metal-clad switchboard comprising four 1,600 amp. bus section isolators, two 1,600 amp. bus couplers, and twenty-seven 600 amp. outgoing feeders. The gear is of the standard G.E.C. metal-class type embodying oil circuit breakers having a breaking capacity of 350,000 Kva.

Glasgow Transport Committee has recommended the acceptance of the tenders for the reconditioning of 300 tramcars at a total cost of £208,147; motors, etc., General Electric Co. and Metropolitan-Vickers Electrical Co., Ltd.; roller-bearing axle boxes, Ransomes and Marles Bearing Co., Ltd., Hoffmann Manufacturing Co., Ltd., and the Skefko Ball-Bearing Co., Ltd.; air brake equipment, Consolidated Brake & Engineering Co., Ltd., and the Electro-Mechanical Brake Co., Ltd.; magnetic track brakes, Metropolitan-Vickers Electrical Co., Ltd., and the Electro-Mechanical Brake Co., Ltd.; truck forgings, side frames, and end sills, Brush Electrical Engineering Co., Ltd.; suspension bars, P. & W. Maclellan, Ltd.

Digitized by Google

Bristol Tramways and Carriage Co., Ltd., have received the following orders for Bristol omnibuses:—Two 26-seat, one-man operated, Stockton Corporation; a "repeat" for four 4-cylinder 4-wheel light passenger chassis, the Merseyside Touring Co.; four 4-cylinder light passenger chassis, Pontypridd Council Tramways.

Crossley Motors, Ltd., Manchester, have received from the Race-course Betting Control Board a fourth repeat order for four 30/70 h.p. four-cylinder six-wheelers for conveying electrical equipment for use in connection with the Totalisator. Only recently the Board purchased eleven Crossleys, and the total number of Crossley six-wheelers now owned by the Board is thirty.

Pontypridd Urban Council on March 18 approved the Tramway Committee's recommendation to accept the tender of Clough, Smith & Co., Ltd., 36, Victoria-street, Westminster, for the conversion of the overhead equipment of the Cilfynydd-Treforest section of the tramways for trolley omnibus operation. This represents the first tramway conversion to trolley omnibus system in Wales.

Glasgow Transport Committee has recommended that the contract for the manufacture of seats for the 300 tramcars which the department are reconditioning should be entrusted to a Glasgow firm. Although the firm employs furnishing workers, the vehicle builders object on the ground that the work belongs to the vehicle building industry. A question in regard to the matter was raised at the Town Council meeting on March 20, and the matter was deferred.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

NAME.	Week ended	LATEST RETURN. 1929	1930	+ or —	AGGREGATE. Wks	1929-30	+ or —
		£	£	£		£	£
Aberdare U.D.C.	Mar. 25	587	569	— 18	51½	30,578	+ 3,026
„ Motor Buses	„ 25	252	277	+ 25	51½	13,449	+ 2,037
„ Total	„ 25	839	846	+ 7	51½	44,027	+ 5,063
Aberdeen Corp.	„ 19	3,891	4,161	+ 270	42¾	206,767	+ 16,852
Ashton-u-Lyne Corp.	„ 22	847	782	— 65	51	46,025	+ 1,675
„ Motor Buses	„ 22	468	448	— 20	51	24,549	+ 2,042
„ Trolley Buses	„ 22	285	264	— 21	51	14,250	— 760
„ Total	„ 22	1,600	1,494	— 106	51	84,824	+ 3,857
Ayr Corporation	„ 22	424	412	— 12	44	25,704	+ 1,434
Barrow Corporation	„ 22	538	495	— 42	51	29,562	— 3,321
„ Motor Buses	„ 22	264	318	+ 53	51	19,354	+ 7,723
„ Total	„ 22	802	813	+ 11	51	48,916	+ 4,402
Belfast City	„ 21	10,769	10,934	+ 165	50½	564,313	+ 83,339
„ Motor Buses	„ 21	964	1,339	+ 375	50½	57,717	+ 36,487
„ Total	„ 21	11,733	12,273	+ 540	50½	622,030	+ 119,826
Birkenhead Corp.	„ 23	1,646	1,473	— 173	51	82,732	— 10,695
„ Motor Buses	„ 23	2,902	3,014	+ 112	51	177,322	+ 31,512
„ Total	„ 23	4,548	4,487	— 61	51	260,054	+ 20,817
Birmingham Corp.	„ 18	26,707	25,428	— 1,279	50	1,369,060	+ 22,278
„ Motor Buses	„ 18	11,770	13,906	+ 2,136	50	683,865	+ 126,517
„ Trolley Buses	„ 18	553	557	+ 4	50	28,402	+ 974
„ Total	„ 18	39,030	39,891	+ 861	50	2,081,327	+ 149,768
Blackburn Corp.	„ 19	1,931	1,637	— 294	50½	96,320	— 5,649
„ Motor Buses	„ 19	Nil	315	+ 315	19½	6,583	+ 6,583
„ Total	„ 19	1,931	1,952	+ 21	50½	102,903	+ 934
Bradford Corporation	„ 22	13,772	13,778	+ 6	51	752,799	— 40,361
Brighton Corporation	„ 23	2,090	2,152	+ 62	51	129,930	+ 4,126
Burnley Corporation	„ 22	2,956	2,727	— 229	...	...	...
„ Motor Buses	„ 22	622	652	+ 30	...	...	...
„ Total	„ 22	3,578	3,379	— 199	...	...	...
Burton-on-Trent Cpn.	„ 23	765	864	+ 99	51	2,849	+ 7,575
Bury Corporation	„ 23	2,144	1,735	— 409	51	99,986	— 10,253
„ Motor Buses	„ 23	324	908	+ 684	51	32,773	+ 14,231
„ Total	„ 23	2,468	2,643	+ 175	51	132,759	+ 3,978
Cardiff Corporation	„ 15	6,992	7,419	+ 427	49½	386,345	+ 11,750
Chatham and District	„ 20	948	1,011	+ 63	11	11,695	+ 861
Chester Corporation	„ 24	399	Nil	— 399	51½	19,593	— 2,018
„ Motor Buses	„ 24	Nil	579	+ 579	5½	3,098	+ 3,098
„ Total	„ 24	399	579	+ 180	51½	22,691	+ 1,080
Chesterfield Corp.	„ 24	1,885	1,946	+ 61	51	100,239	+ 3,955
Colchester Corp.	„ 26	502	531	+ 29	52	28,911	+ 5,382
Colne Corporation	„ 19	665	594	— 71	51	35,855	+ 231
Coventry Corporation	„ 23	2,168	2,044	— 124	51	109,048	+ 2,149
„ Motor Buses	„ 23	1,537	1,781	+ 244	51	85,777	+ 22,110
„ Total	„ 23	3,705	3,825	+ 120	51	194,825	+ 24,259
Darlington Corp.	„ 22	912	1,047	+ 135	50½	51,357	+ 1,821
Derby Corporation	„ 22	2,377	2,309	— 68	51	126,706	— 3,079
„ Motor Buses	„ 22	598	866	+ 268	51	39,717	+ 16,047
„ Total	„ 22	2,975	3,175	+ 200	51	166,483	+ 12,968
Dover Corporation	„ 22	324	353	+ 29	51	20,518	+ 814
Dundee Corporation	„ 11	3,263	3,303	+ 40	42½	149,581	+ 5,631
East Ham Corp.	„ 22	2,226	2,266	+ 40	49½	117,291	+ 5,568
Edinburgh Corp.	„ 15	13,470	13,324	— 146	43½	624,095	+ 26,304
„ Motor Buses	„ 15	3,056	3,331	+ 275	43½	151,711	+ 17,755
„ Total	„ 15	16,526	16,655	+ 129	43½	775,806	+ 44,149
Exeter Corporation	„ 26	844	732	— 112	52	43,083	+ 512
Glasgow Corporation	„ 15	42,612	43,784	+ 1,172	41	1,821,730	+ 29,968
„ Motor Buses	„ 15	4,982	7,982	+ 3,000	41	259,057	+ 128,696
„ Total	„ 15	47,594	51,766	+ 4,172	41	2,080,787	+ 158,664
Gloucester Corp.	„ 19	470	639	+ 169	50½	30,768	+ 3,293
Grimsby Corporation	„ 22	1,256	1,436	+ 180	51	74,545	+ 7,155
Halifax Corporation	„ 18	3,999	4,708	+ 709	50½	239,531	+ 22,908
Huddersfield Corp.	„ 22	6,042	5,939	— 103	51	313,091	+ 4,791
Hull Corporation	„ 22	5,879	5,757	— 122	51	308,062	+ 1,678
„ Motor Buses	„ 22	1,273	1,441	+ 168	51	72,777	+ 9,084
„ Total	„ 22	7,152	7,198	+ 46	51	380,839	+ 11,362
Ilford Corporation	„ 22	1,451	1,458	+ 7	50½	76,455	+ 1,773
Ipswich Corp. Trol.Bus	„ 22	1,171	1,219	+ 48	51	65,516	+ 4,579
Isle of Thanet	„ 19	366	345	— 21	11½	3,871	+ 209
Kilmarnock Corp.	„ 22	428	475	+ 47	44½	21,250	+ 1,571
Lancashire Un.	„ 9	2,319	2,170	— 149	9½	21,302	— 435
„ Motor Buses	„ 9	4,024	4,597	+ 573	9½	44,146	+ 8,018
Leeds Corporation	„ 22	19,058	19,137	+ 79	50½	997,173	+ 36,384
Leicester Corp.	„ 22	8,122	8,137	+ 15	51	430,565	+ 22,180
Lincoln Corp.	„ 23	1,010	861	+ 149	51	46,954	+ 1,882
Liverpool Corp.	„ 22	30,986	28,710	— 2,276	50½	1,529,563	+ 28,977
London County Coun.	„ 26	83,725	81,535	— 2,190	51½	4,298,508	+ 76,380
Luton Corporation	„ 19	343	375	+ 32	50½	20,358	+ 1,389
Maidstone Corp.	„ 20	196	Nil	— 196	50½	8,637	— 4,091
„ Motor Buses	„ 20	239	251	+ 12	50½	15,820	+ 4,370
„ Trolley Buses	„ 20	273	505	+ 232	50½	16,515	+ 3,020
„ Total	„ 20	708	756	+ 48	50½	40,972	+ 3,299
Manchester Corp.	„ 15	34,527	32,785	— 1,742	50	1,745,220	+ 19,328
„ Motor Buses	„ 15	4,818	5,898	+ 1,080	50	251,338	+ 38,820
„ Total	„ 15	39,345	38,683	— 662	50	1,996,558	+ 58,148

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS—*Continued.*

NAME.	Week ended	LATEST RETURN. 1929	1930	+ or —	AGGREGATE. Wks.	1929-30.	+ or —
		£	£	£		£	£
Middlesbrough Corp.	Mar. 18	1,057	1,030	— 27	50½	57,009	— 230
„ Motor Buses	„ 18	445	561	+ 116	50½	26,950	+ 4,263
„ Total	„ 18	1,502	1,591	+ 89	50½	83,959	+ 4,033
Newcastle-on-Ty. Corp	„ 22	9,110	8,678	— 432	51	406,446	+ 20,122
„ Motor Buses	„ 22	1,901	2,210	+ 309	51	104,692	+ 10,944
„ Total	„ 22	11,011	10,888	— 123	51	601,138	+ 31,066
Newport Corporation	„ 15	667	751	+ 84	50	38,225	+ 2,839
„ Motor Buses	„ 15	1,616	1,649	+ 33	50	84,170	+ 591
„ Total	„ 15	2,283	2,400	+ 117	50	122,395	+ 3,430
Northampton Corp.	„ 21	1,273	1,026	— 246	50½	56,526	— 16,042
„ Motor Buses	„ 21	401	636	+ 234	50½	34,009	+ 17,595
„ Total	„ 21	1,674	1,662	— 12	50½	90,535	+ 1,553
Nottingham Corp.	„ 20	6,244	5,458	— 786	50½	326,786	— 12,187
Motor Buses	„ 20	2,150	2,981	+ 831	50½	130,417	+ 31,898
„ Trolley Buses	„ 20	567	1,142	+ 575	50½	32,426	+ 4,031
„ Total	„ 20	8,961	9,581	+ 620	50½	489,629	+ 23,742
Oldham Corporation	„ 24	3,954	4,201	— 247	52	186,443	— 14,415
„ Motor Buses	„ 24	2,188	2,238	+ 50	52	104,795	+ 27,751
„ Total	„ 24	6,142	6,439	+ 297	52	291,238	+ 13,336
Plymouth Corp.	„ 22	3,408	3,193	— 215	50½	188,151	— 3,208
„ Motor Buses	„ 22	1,766	2,060	+ 294	50½	103,388	+ 15,675
„ Total	„ 22	5,174	5,253	+ 79	50½	291,539	+ 12,467
Portsmouth Corp.	„ 22	5,168	5,695	+ 527	51	326,830	+ 21,744
Preston Corporation	„ 19	1,559	1,554	— 5	50½	86,237	+ 1,058
„ Motor Buses	„ 19	425	469	+ 44	50½	25,168	+ 3,098
„ Total	„ 19	1,984	2,023	+ 39	50½	111,405	+ 4,156
Rawtenstall Corp.	„ 23	829	824	— 5	51	42,970	— 1,948
„ Motor Buses	„ 23	476	574	+ 98	51	26,870	+ 3,749
„ Total	„ 23	1,305	1,398	+ 93	51	69,840	+ 1,751
Reading Corporation	„ 20	1,365	1,419	+ 54	51	77,332	+ 748
„ Motor Buses	„ 20	797	866	+ 69	51	46,824	+ 3,082
„ Total	„ 20	2,162	2,285	+ 123	51	124,156	+ 3,830
Rochdale Corp.	„ 22	2,897	2,565	— 332	...	144,965	— 12,392
„ Motor Buses	„ 22	1,354	1,497	+ 143	...	80,987	+ 12,950
„ Total	„ 22	4,251	4,062	— 189	...	225,952	— 558
Rotherham Corp.	„ 24	2,478	2,661	+ 183	52	142,749	+ 12,443
Salford Corporation	„ 23	10,773	11,332	+ 559	51	574,438	+ 39,621
Sheffield Corp.	„ 22	20,288	20,226	— 62	51	1,067,367	+ 37,759
Southampton Corp.	„ 19	2,987	3,111	+ 124	51	172,504	+ 9,456
„ Motor Buses	„ 19	618	818	+ 200	51	41,806	+ 11,225
„ Total	„ 19	3,605	3,929	+ 324	51	214,310	+ 20,681
Southend-on-Sea Corp.	„ 26	1,934	1,915	— 19	51½	121,273	+ 1,505
Southport Corp.	„ 22	1,502	1,421	— 81	50½	84,620	+ 680
St. Helens Corp.	„ 18	1,950	2,046	+ 96	50½	103,397	+ 6,915
Sunderland Corp.	„ 23	2,170	2,310	+ 140	51	123,509	+ 5,766
Swindon Corp.	„ 12	599	905	+ 306	49½	41,182	+ 12,224
Wallasey Corp.	„ 22	1,237	1,297	— 140	50½	64,932	— 36,095
„ Motor Buses	„ 22	1,774	1,843	+ 69	50½	104,511	+ 54,523
„ Total	„ 22	3,011	2,940	— 71	50½	169,443	+ 18,428
Walsall Corporation	„ 16	3,201	3,320	+ 119	50	173,837	+ 15,522
Walthamstow Corp.	„ 22	2,276	2,363	+ 87	51	123,822	+ 9,146
Warrington Corp.	„ 20	872	907	— 35	51	45,583	— 934
„ Motor Buses	„ 20	438	488	+ 50	51	23,514	+ 3,521
„ Total	„ 20	1,310	1,395	+ 85	51	69,097	+ 2,587
West Ham. Corp.	„ 20	5,680	5,999	+ 319	50½	309,379	+ 27,403
Wolverhampton Corp.	„ 23	Nil	Nil	Nil	51	Nil	— 15,958
„ Motor Buses	„ 23	2,767	2,313	— 454	51	139,060	+ 14,480
„ Trolley Buses	„ 23	3,139	3,644	+ 505	51	173,864	+ 28,516
„ Total	„ 23	5,906	5,957	+ 51	51	312,924	+ 27,038
York Corporation	„ 19	858	903	+ 45	51	52,586	+ 692
„ Motor Buses	„ 19	353	473	+ 120	51	21,934	+ 5,336
„ Total	„ 19	1,211	1,376	+ 165	51	74,520	+ 6,028

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

NAME.	Week or M'th.	LATEST RETURN. 1928-29.	1929-30.	AGGREGATE. Wks. or *Ms.*	1929-30.	In. or Dec.
Anglo-Argentine	Mar. 25	£87,830	£83,037	12 w	£1,000,920	— £39,448
Brazilian Traction $	Feb.	3,755,709	3,798,698	2 *m*	7,660,787	+ 12,245
British Columbia $	Jan.	1,256 252	1,354,314	7 *m*	8,605,787	+ 498,897
Buenos Aires Lacroze	Mar. 23	12,837	12,222	38 w	444,485	— 37,223
Burma E. Sup. Co. Rs.	Feb.	63,808	63,098	7 *m*	438,968	— 26,772
Calcutta Rs.	Mar. 22	126,559	117,545	11½ w	1,441,891	— 111,984
Cape Town	Feb.	28,274	27,479	...	...	...
Carthagena & Herrerias	Feb.	972	1,286	2 *m*	2,637	+ 933
Durban	Feb.	21,848	21,321	7 *m*	166,874	+ 2,240
East India	Feb.	3,055	3,127	7 *m*	26,662	+ 797
Kalgoorlie	Nov.	1,721	1,643	11 *m*	18,817	— 369
La Plata	Dec.	10,300	10,327	12 *m*	116,149	+ 2,604
Madras (2 weeks) Rs.	Mar. 16	44,921	56,183	10 w	236,854	+ 22,097
Para	Feb.	14,007	13,628	3 *m*	42,671	+ 276
Port Elizabeth	Feb.	7,478	7,110	...	...	...
Rangoon Rs.	Feb.	114,300	140,130	2 *m*	295,210	+ 64,075
Shanghai $	Feb.	294,708	322,473	2 *m*	685,873	+ 71,945
Singapore $	Feb.	117,000	128,000	5 *m*	655,000	+ 92,000
Winnipeg $	Jan.	607,966	628,979	1 *m*	628,979	+ 21,013

RAILWAY RECEIPTS.

12th Week ended Mar. 23rd	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week.	Inc. or Dec. to Date.
G.W.R.	184,000	— 22,000	340,000	— 46,000	524,000	— 68,000	— 55,000
L.M.S R.	425.000	— 53,000	855.000	— 85,000	1,280,000	— 138,000	— 343,000
L.N.E.R.	292,000	— 18,000	708,000	— 61,000	1,000,000	— 79,000	+ 13,000
S.R.	255,000	— 15,000	114,000	— 13,000	369,000	— 28,000	+ 39,000
Totals	1,156,000	— 108,000	2,017,000	— 205.000	3,173,000	— 313,000	— 346,000

ELECTRIC RAILWAYS.

NAME.	Week Ended.	LATEST RETURN. 1929.	1930.	+ or —	AGGREGATE. 1930.	+ or —
LONDON UNDERGROUND						
Common Fund Cos.	Mar. 22	285,400	294,800	+ 9,400	3,433,100	+ 320.300
Lond. & Sub. Group	„ 22	40,700	42,200	+ 1,500	496,500	+ 60,100
METROPOLITAN RAILWAY	„ 22	35,800	36,100	+ 300	435,400	+ 17,100
LIVERPOOL OVERHEAD	„ 23	1,531	1,371	— 160	17,929	— 783
MERSEY RAILWAY	„ 22	4,644	4,592	— 52	57,250	+ 1,954

Digitized by Google

THE
Tramway and Railway World

FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.
Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates—
FOR THE UNITED KINGDOM—Twenty-five shillings per annum.
FOR ALL PLACES ABROAD—Twenty-five shillings per annum. Postage to Canada, 6s.; to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS

LONDON, APRIL 5, 1930.

MUNICIPALITIES NOT TO MANUFACTURE.

Few will deny the wisdom of the refusal of a Select Committee of the House of Lords to approve a clause in the Leicester Corporation Bill which would have permitted the transport department to construct bodies for motor and trolley omnibuses. The Committee had no difficulty in arriving at their decision, although the case for the Corporation was placed before them as forcibly as was possible by Mr. Wrottesley, K.C., the town clerk, and the tramways manager. The arguments were not, however, convincing as to the strength or the equity of the case in relation to the facilities now available for obtaining bodies. Counsel's strongest plea was that the Corporation could not build up a traffic business without being permitted to use their repair shops and the employees therein for building bodies. In giving evidence in support of that statement the town clerk and the manager said that the intention was to build an occasional body, and they did not consider that the powers sought would enable manufacture to be conducted on a large scale at some future date. It is in that direction that the chief danger is to be apprehended. As soon as Labour is returned to Westminster with a clear majority it is intended that several trades shall become state-managed undertakings. There can be no doubt that Socialistic transport operators would then find it an easy matter to secure an extension of their powers by the inclusion of body building. It is, of course, necessary that the undertakings should have their present facilities for maintenance and repair work, but that does not warrant entry into the specialised industry of body building. Tramway managers and engineers have enough other work to occupy their attention in this competitive age, which has forced them into remodelling tramcars and electrical equipment. They do not, however, claim either to be metallurgists or to have the facilities for becoming such. And the light-weight metal body has already arrived. Nor can skilled employees be obtained in a day. Construction of omnibuses and coaches has developed a craft excellence equal to the coachbuilder's art of the carriage era. Workmen have acquired their skill by growing up with the business or by transfer from the motor-car factory. Public transport authorities derive much advantage from the existence of the numerous private builders all in keen competition. There is no take-it-or-leave-it attitude on the part of these firms. They wisely show every desire to profit from operating experience and to improve their designs accordingly. To permit municipalities to embark upon body building would be unjust to the railway companies, who were precluded from building the vehicles when in 1928 they were given powers to operate omnibuses. The railways, too, have the most extensive vehicle building works in this country, but their facilities have been acquired largely at the expense of the nation's export trade in locomotives and rolling stock. Railways cannot build vehicles for export, or even for home sale. We cannot afford to allow a similarly injurious result to occur in the body-building trade, which needs all the support it can receive from the home market.

MUNICIPAL TRAMWAYS AND TRANSPORT ASSOCIATION.

ANNUAL MEETING OF THE MANAGERS' SECTION.

The annual meeting of the Managers' Section of the Municipal Tramways and Transport Association will take place at Nottingham on May 29 and 30. Mr. C. Owen Silvers, general manager of Wolverhampton Corporation Transport, and Mr. W. G. Marks, general manager, of Nottingham Corporation Transport, will introduce the subject of "The Trackless Trolley System of Passenger Transport."

Mr. T. Smalley, general manager of Barrow Corporation Tramways, and Mr. A. A. Blackburn, general manager of Huddersfield Corporation Tramways, will speak on "The Prevention and Detection of Irregularities."

Mr. L. E. Harvey, general manager of Ilford Corporation Tramways, will read a paper on "Some Aspects of Tramcar Development."

THE ANNUAL CONFERENCE.

It had been arranged that the annual conference of the Municipal Tramways and Transport Association should be held at Harrogate from September 10 to 12, 1930. The Council, having ascertained that it would be impossible to obtain hotel accommodation on the dates named owing to the Doncaster Races, are considering other dates, and their decision will be announced later.

On Thursday, April 10, the Petroleum Distributors' Committee will meet representatives of the Council of the Municipal Tramways and Transport Association, including Ald. Thomas Canby, the president, and Mr. R. S. Pilcher, the vice-president, to consider the possibility of a rebate based on the annual motor-spirit consumption of the members of the Association.

The Council of the Association has approved the appointment of a new committee of the British Engineering Standards Association, to be styled "The Technical Committee on Tramways Development."

NORTH LONDON TUBE TO BE EXTENDED.

SELECT COMMITTEE'S VIEW OF L.N.E.R. ELECTRIFICATION.

The preamble of the Bill promoted by the London Underground Companies for the extension of the Piccadilly Tube from Finsbury Park to Cockfosters was found proved so far as concerned this extension by a Select Committee of the House of Commons on Tuesday.

The case for the promoters was closed last week, and on Friday Sir Ralph Wedgwood, chief general manager of the London and North-Eastern Railway Co., giving evidence in opposition to the Bill, said his company would be prepared to electrify 60 miles of line if they could get Treasury assistance on the same basis as that given to the Electric Railway Companies. The Chairman thereupon said that the Committee must have information as to the Treasury assistance promised.

Mr. Frank Pick, managing director of the London Underground Group, recalled, said the Bill contained in addition to the proposal for the northern tube extension provisions for a western extension and certain improvements to stations. For works alone the scheme would cost £9,927,000. In addition there would be charges for land, engineering costs, etc., amounting to £1,328,000. It was not thought possible to raise money at par, and so provision was made for £1,130,000 for discounts on issue of securities, thus giving a total of £12,385,000. Negotiations were still proceeding in regard to the exact way in which the grant would be paid, but the calculation was made on the basis of the sum required at present values to pay an annuity for fifteen years. That would amount to about 25 per cent. of the value of the works. The company would take three-quarters of the risk, and at the end of fifteen years it would assume the whole burden of responsibility. The effect of the financial arrangement with the Treasury was that the company would get 3 per cent. on £4,275,000 for fifteen years. It was

Digitized by Google

estimated that the new line would carry 30,000,000 passengers a year, producing a revenue of £260,000. Of that there would be a disposable balance of £185,000, representing a return of roughly 3¾ per cent. upon the capital expended. The bankers thought they could finance the scheme on a 5½ per cent. basis. Mr. Pick added that of the total expenditure on works it was estimated about £8,000,000 would be paid in wages.

The Chairman, in announcing that the Committee found the preamble of the Bill proved so far as it concerned the extension from Finsbury Park to Cockfosters, added: We desire to make it known that our opinion is that the London and North-Eastern Railway should not feel discouraged from going forward with their electrification.

The Select Committee heard evidence on Wednesday on details of the other works proposed in the Bill, including widening of lines west of Hammersmith and alterations to a number of existing stations. The Committee passed the remaining parts of the Bill, and it was returned for a third reading.

ELECTRIFICATION OF THE L.N.E.R.

NORTH LONDON SCHEME.

Details of the project for electrifying the L.N.E.R. lines from King's Cross to northern suburban districts were issued on Thursday by Mr. T. Teasdale, assistant general manager of the company. The scheme, which is now complete, has been laid before the Development Act Committee with an application for assistance from public funds, and its carrying out is understood to be conditional upon the grant of such assistance.

The scheme includes the electrification of the main lines of the Great Northern system leading out of London via Hadfield and Enfield as far as Welwyn Garden City and Hertford, 20 miles from King's Cross. Suburban branches leading from Finsbury Park to Alexander Palace, High Barnet, and Edgware will also be electrified. The total length of electric line will comprise 60 miles of route, equal to 173 miles of single track. The estimated cost is £3,700,000, and there is a further item of £650,000 for the widening of tunnels.

The intention is to double the existing train services over the area served. At present the company run 1,945,000 train miles per annum in the area to be electrified, and when the electrification is complete, train mileage will be increased to 4,000,000 per annum. At present the L.N.E.R. carries 28,000,000 suburban passengers a year through Finsbury Park.

It is anticipated that the work of electrification will take about three years, but, as mentioned above, the publication of the details does not indicate the determination of the company to proceed.

CHARING CROSS BRIDGE BILL.

Sir Henry Maybury, consulting engineer on roads and traffic to the Ministry of Transport, gave evidence on Monday last, before the House of Commons Committee, in support of the London County Council's scheme for the reconstruction of Charing Cross Bridge in place of the railway bridge, and the removal of the Southern Railway terminus to the Surrey side of the river. Sir Henry said Trafalgar Square in 1940 would have at least 40 per cent. more traffic than to-day. That was one of the points the new bridge would relieve. Assuming Charing Cross Bridge was completed by 1940, he estimated that at the rush hours the bridge would be used by 1,080 vehicles an hour going south, and 920 vehicles an hour northward. Traffic over the bridges was increasing by 5.2 per cent. per annum.

On Wednesday the cross-examination of Sir Henry Maybury was concluded. The witness said that the Traffic Advisory Committee had always been unanimously in favour of the scheme now proposed, and they represented every interest.

The Chairman: Excepting railway passengers.

Sir Henry Maybury: The railway companies are represented.

The Chairman: But that does not count.

Continuing, the witness said that there would be ample provision for taking passengers from the new station to the north side of the river; the omnibuses could carry over five million passengers a day. Referring to the proposed tunnels in North Lambeth, Sir Henry described them as covered roadways with a headway of 17 ft. The scheme provided a very good beginning for the development of Lambeth, and would lead to improvements that might not have taken place until half a century later.

Replying to questions on behalf of Westminster City Council, Sir Henry Maybury said that there was great need for widening St. Martin's Lane at present.

Sir Edwin Lutyens gave evidence that when he was invited to advise upon the possible layout of the scheme, his hands were in no way tied. His solution was to provide for the difficulties, taking into account the various features, and at the same time to provide a scheme which would permit of architectural treatment. He was forced to the conclusion that the only practical site for the railway station was that now proposed in the scheme. He had had regard to traffic navigation and engineering construction.

Car Improvement at Darwen.—The first of the Darwen Corporation tramcars to be refitted for more comfortable travel has been inspected by the Tramways and Motors Committee. Later a trial run was made to Blackburn. The seats in the lower saloon are upholstered in moquette and those upstairs in leather. The interior decoration and lighting have been improved, and a special flooring is used.

THE ROAD TRAFFIC BILL.

The Standing Committee of the House of Commons, which is considering the Road Traffic Bill, met on Tuesday and Wednesday under the chairmanship of Sir Hugh O'Neill.

The discussion on clause 15, which imposes penalties for driving and being in charge of a motor car when under the influence of drink, was resumed.

Mr. Morrison, Minister of Transport, accepted an amendment increasing the penalties under the clause to a fine not exceeding £50 or imprisonment for four months, and in the case of a second or subsequent conviction to imprisonment for four months or a fine not exceeding £100 or both. In case of conviction on indictment there would be liability for imprisonment for a term not exceeding six months, or a fine, or both.

Mr. Duncan Miller, in proposing the amendment, said his purpose was to bring the penalties for the offence specified in the clause to the same standard as those involved in Clause 11 for dangerous and reckless driving.

On Thursday the Committee discussed Clause 19, which limits the time during which public service and other heavy motor vehicles can be on duty continuously. Mr. Remer moved an amendment providing that the period should not exceed six hours instead of 5½ hours as the clause proposed.

Lieut.-Col. Ashley said he was not hostile to the principle of the clause, but that the time had gone by when Parliament could stand aside and say that the negotiations on the question of hours of motor drivers must be left to the employers and the employed. The Committee, however, should consider whether the hours of work proposed were workable.

Mr. Morrison, Minister of Transport, said that it had been thought necessary to insert this clause in the Bill to meet a serious state of affairs. Cases had come to the notice of the Ministry in which there was reason to believe that accidents had been caused by the fatigue of drivers owing to long hours of continuous work. Mr. Morrison then explained the negotiations that had taken place between him and the interests concerned, resulting in the proposals in the Clause that the period of continuous driving should not exceed 5½ hours, and that the agreed period of working should not exceed 11 out of 24 hours. Provision was also made to meet exceptional cases, on joint application being made by the representative of workers and employers. Mr. Llewellyn Jones said his experience in inquiries into fatal accidents led him to believe that motor drivers were often practically asleep when driving, owing to their long period of duty.

After further discussion, Mr. Remer withdrew his proposed amendment, and the Committee agreed to an amendment proposed by Mr. Morrison to cover the case of drivers changing over at the week-end from late to early shifts. An amendment moved by Sir K. Vaughan-Morgan to exclude from the clause motor vehicles used for fire practice or ambulance purposes was accepted on behalf of the Government.

The clause was then agreed to and the Committee adjourned until Tuesday.

MISCELLANEOUS NEWS AND NOTES.

Bournemouth Licensing Committee has deferred the issue or renewal of any omnibus licences until it has received the assurance in each case that any agreements made by the companies concerned will be duly observed.

Warsaw Tramway Congress.—Manchester City Council has decided to send delegates to the International Congress of the Tramways and Light Railways and Omnibus Union, to be held in Warsaw from June 29 to July 5. The President of the Republic of Poland has accepted the office of Honorary President of the Congress.

Newcastle Wages Question.—A deputation of the General Workers' Union met a sub-committee of Newcastle Corporation Transport Committee on April 1 to submit an application for an increase in wages of certain depot employees. The sub-committee made a proposal which has to be submitted to the employees concerned.

Walsall Given Power to Acquire Routes.—A Select Committee of the House of Commons, on Thursday, partly concluded the hearing of Walsall Corporation Bill by giving Walsall power to acquire certain tramway routes compulsorily, subject to undertakings given by Walsall. The clause was opposed by West Bromwich and Wednesbury.

A New Trolley Omnibus.—Speaking at the annual meeting of Tilling-Stevens Motors, Ltd., on March 25, Mr. H. E. Carter (chairman) said that their new petrol-electric chassis was an up-to-date and efficient vehicle. The chassis without the engine used as a trolley omnibus appeared to have considerable likelihood of future development, and they had under manufacture a special trial vehicle.

Hastings Traffic Arrangement.—At a special meeting of Hastings Town Council it was reported that an agreement had been reached between the Council and the local transport companies. As a result of this arrangement, traffic will be shared on the basis of 50 per cent. for the Hastings and District Tramways Company, and 50 per cent. for the other companies. The new trolley omnibus routes agreed upon include one to the railway station, and an all-day service to High-street has also been approved. The Council have decided to oppose the tramway company's Bill in Parliament, but the hope was expressed that there would be an amicable agreement, and that the "hatchet" between the Corporation and the tramways company would be permanently buried.

Digitized by Google

Result of Higher Fares in Berlin.—According to the British United Press the higher tramway, omnibus and underground railway fares in Berlin have resulted in a decrease in the number of passengers and the revenue. In the first month of the increased fares the decreases were as follow: Tramcar passengers, 15 per cent.; underground railway passengers, 11 per cent.; omnibus passengers, 12 per cent.

All Over London for Two Shillings.—By arrangement with the London Underground, the Metropolitan Railway, the London General Omnibus Company and several other omnibus and tramway companies are issuing a new series of day and half-day excursion tickets, which include travel to London and any number of journeys round the Metropolis. This " all-over-London ticket " costs 2s. in addition to the excursion fare.

Remains of the First Horse Tramways.—The last of the old rails opposite the central station, Birkenhead, over which ran the first horse tramcars in Europe, were removed on March 12. Only the upper part of the rail was of metal, the remainder being of wood. The " Liverpool Post and Mercury " states that the wood was in a surprisingly good state, although it had been in the ground for seventy years. Some of the original rails are still to be seen in Palm-grove, close to the old tramway stables.

New L.G.O.C. Omnibuses.—The London General Omnibus Company have decided to put no more mirrors in their new omnibuses. An experiment recently tried in the company's new vehicles of the " S.T." type has had the effect of delaying passengers who entered the omnibuses. Certain other modifications will be made, the principal of which will entail the backward extension of the stair from its present position up the centre of the omnibus, to the door, as in other models. It appears that the unaccustomed position of the stair in the new vehicle proved a trap for the unwary.

Footpaths at Liverpool.—Liverpool Corporation is considering a scheme for marking its boundaries by a line of paths where people may enjoy a twenty-mile walk free from cars. The idea is to provide a series of linked pathways reserved for pedestrians. As an experiment a half-mile section of pathway will be laid out in the Childwall district next year, and then the Health Committee will decide what shall be done about the rest. The pathways will be nowhere less than 40 feet wide. Incidentally, such a scheme would provide an incentive to travel upon the municipal tramways and omnibuses.

A Hint to London Travellers.—An official of the London Underground Railways recently stated that while faster trains, escalators and other means are speeding up travel, Underground traffic has become so congested that there has been no increase in its speed. A hundred years ago, he continued, one could journey by omnibus from Paddington to the Bank in 17 minutes. To-day the same journey could not be done under less than twice the time. If people would adopt the habit of going by omnibus and train instead of by omnibus alone, there would be an enormous saving in time. The latest step was an experiment in shortening delay at stopping places, with a new type of omnibus with greatly increased acceleration, a large platform at the back to hold ten people and a straight-up stairway in place of the winding stairway. This vehicle was described and illustrated in THE TRAMWAY AND RAILWAY WORLD of February 13.

Steam Rail Cars.—The difficult problem which every railway has to meet is that of providing a profitable passenger service on branch lines. In the circumstances it is not surprising that the rail motor coach is being rapidly developed. Just before the war there were at least 200 steam rail cars in operation in Great Britain. About 108 of these were owned by the Great Western Railway and its subsidiary lines; 25 by the London and South Western Railway; and 17 by the Lancashire and Yorkshire Railway. Subsequently the use of rail cars was discontinued, except by the Great Western and Southern Railways. Since 1918 this type of coach has been rapidly developed, and steam cars, capable of seating about 60 people, are now provided with high-pressure boilers, engines of six cylinders, coal storage for sixteen hours' working and water sufficient to run thirty miles. There are said to be 127 steam rail coaches, apart from auto-trains, in service on British railways.

Yorkshire Switchgear & Engineering Co., Ltd.
ELECTRICAL AND TRAMWAY ENGINEERS
OVERHEAD LINE MATERIALS AND SUPPLIES.
Sole Manufacturers of
TURNER'S PATENT AUTOMATIC POINT CONTROLLERS.
Telegrams: "Controller, Leeds." Telephone: 51038 & 51039 Headingley
GROVE MILLS, MEANWOOD, LEEDS.
London Office: 103, CANNON STREET, E.C.4.
Telephone: City 3014. Telegrams: "Tramsuplim, Cannon, London."

PERSONAL.

Sir William Morris has declared his intention of giving £140,000 to the Radcliffe Infirmary at Oxford.

Mr. W. Tonkinson, chief engineer to the Electric Construction Co., Ltd., has returned to Wolverhampton after a three months' tour to the United States and Canada.

Mr. C. Dendridge, advertising manager of the London and North-Eastern Railway, speaking to members of the Industrial Council on April 1, said that the company relied more on newspaper advertising than on any other form of publicity. He added that 50 per cent. of the company's advertising budget was spent with the newspapers.

Sir John Reeve Brooke, C.B., has been appointed vice-chairman of the Electricity Commissioners in succession to Sir Harry Haward, who has retired from that position. Sir John Reeve Brooke, who was born in 1880, was Secretary to the Minister of Transport from 1923-1927, and to the Central Electricity Board from 1927-1929. He has been an Electricity Commissioner since 1929.

Alderman Richard Mayne, the popular chairman of the Newcastle Tramways and Electricity Committee, celebrated his seventieth birthday on March 31. He first became a member of the City Council in 1904, and was appointed chairman of the Transport and Electricity Committee in 1916. In 1920 he was made an alderman and in that year he was Sheriff. For many years he has been a member of the Council of the Municipal Tramways and Transport Association, of which he was president in 1921-22.

Mr. Henry Mozley, general manager of the Burnley Tramways and Omnibus Department, retired on March 31 after nearly 62 years' service with transport undertakings, by far the greater part of the period having been spent at Burnley. Mr. Mozley went to Burnley in 1882 as manager of the tramways undertaking, then owned by a company. When it was acquired by the Corporation in 1901 Mr. Mozley was appointed general manager and he introduced many important improvements. He early anticipated the success of the motor omnibus, and his administration has always been characterised by energy and foresight. Mr. Mozley was president of the Municipal Tramways and Transport Association in 1916-17 and has been for many years a member of the Executive Council. The Burnley Tramways and Omnibus Committee have placed on record their great appreciation of his services, and have presented him with a free pass on the tramways and omnibuses. The Tramways Committee, at their meeting on Thursday, passed the following resolution: That this Committee places on record its appreciation of the zeal, industry, and ability displayed by Mr. Henry Mozley, in the position of General Manager of the Burnley Corporation Tramways and Omnibuses undertaking during the past 29 years, and they hope his years of retirement may bring him much happiness. The administrative staff of the undertaking has presented Mr. Mozley with a reading lamp as a token of their esteem.

Mr. Alfred Kolkhorst, of Lisbon, late general manager and chief engineer of the Lisbon Electric Tramways, left personal estate in England valued at £48,317.

CONTRACTS.

The British Thomson-Houston Co., Ltd., has received from the London and North-Eastern Railway a twelve months' contract for the supply of Mazda lamps.

Barrow-in-Furness Corporation has accepted the tender of Johnson & Phillips, Ltd., for four 25 k.v.a. 11,000 volt transformers, and of Metropolitan-Vickers, Ltd., for switchgear.

Siemens Electric Lamps & Supplies, Ltd., have a contract from the Irish Free State Department of Local Government and Public Health for 12 months' supply of Siemen's electric lamps and batteries.

Glasgow Transport Committee has accepted the following tenders: Copper trolley wire, Thomas Holden & Co., Ltd. and F. Smith & Co., Ltd. Suction plant for depots, Sturtevant Engineering Co., Ltd. and Metropolitan-Vickers Supplies, Ltd.; electric magnetic crack detector, Yuil & Co., Ltd.

Sheffield Tramways Committee has placed contracts as follow: British Thomson-Houston Co., 41 controllers, £41 each; Cargo Fleet Iron Co., 600 tons Titanium treated rails, £10 18s. 3d. per ton, and 200 tons chromium steel rails, £14 3s. 3d. per ton; British Insulated Cables, Ltd., 800 copper bonds, £8 12s. per 100; 1,000 copper bonds £10 18s. per 100; 100 copper bonds, £15 19s.; and 300 copper bonds, £16 17s. per 100.

The English Electric Company announces that among important contracts recently received are the following: 450 " English Electric " type CDB.2 Form F. hand-operated camshaft tramcar controllers for the Glasgow Corporation. These will be similar to those previously supplied. The value of this contract is £26,000. Ninety-four maximum traction type tramcar trucks fitted with roller bearings, 28 in. dia. driving wheels, 4 ft. 6 in. wheel base, for the Union Construction Company for service on the London United Tramways; the value of this order is about £14,000. Three additional double-deck " English Electric " omnibus bodies to seat 50, on A.E.C. " Regent " chassis, for the Newcastle Corporation.

B.E.N. Patents, Ltd., 92, Tottenham Court-road, London, W.1, have purchased new works at Acton Lane, Harlesden. The building has a floor space of 6,000 sq. ft., and represents the very latest in factory design. The Tottenham Court-road showroom and offices continue to carry on the sales side of the business. The company reports a growing demand for electric polishers, four-gun washers, and spray paint equipment.

Digitized by Google

FINANCIAL.

The Week's Traffic Receipts.—A number of traffic returns have not been received in time for inclusion in this issue. The delay is no doubt, due to the closing of the financial year, when tramway clerical staffs are exceptionally pressed.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended April 2, the first week of the financial year, amounted to £83,670, an increase of £4,581 compared with the corresponding week of last year. The route length was 166.29 miles, as compared with 165.55 a year ago.

Glasgow Tramway Year.—It is expected that the revenue of the Glasgow Corporation Tramways will balance the expenditure for the current year. This has been effected by the Transport Committee agreeing to reduce the rates of depreciation on the permanent way from £1,000 to £900 per annum, and to modify the depreciation on the electrical equipment in view of the installation of new motor controllers and other auxiliaries in the reconditioned cars. These readjustments will, it is expected, result in a saving of about £50,000.

Municipal Transport Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended March 15 give total receipts of £402,194, or £7,623 more than in the corresponding week of last year. The increase shown is much less than that of recent weeks, which has averaged about £29,000 for the past thirteen weeks. The drop was mainly due to inclement weather during the week ending March 15. The aggregate receipts for 50 weeks amounted to £20,715,728, an increase of £990,613 over the corresponding period of last year.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

Name.	Week ended	Latest Return. 1929	1930	+ or —	Aggregate. Wks	1929-30	+ or —
		£	£	£		£	£
Aberdare U.D.C.	Mar. 25	587	569	— 18	51¾	30,578	+ 3,026
„ Motor Buses	„ 25	252	277	+ 25	51¾	13,449	+ 2,037
„ Total	„ 25	839	846	+ 7	51¾	44,027	+ 5,063
Aberdeen Corp.	„ 26	4,183	4,197	+ 14	43¾	210,965	+ 16,867
Ashton-u-Lyne Corp.	„ 22	847	782	— 65	51	46,025	+ 1,675
„ Motor Buses	„ 22	468	448	— 20	51	24,549	+ 2,942
„ Trolley Buses	„ 22	285	264	— 21	51	14,250	— 760
„ Total	„ 22	1,600	1,494	— 106	51	84,824	+ 3,857
Ayr Corporation	„ 29	466	437	— 29	45	26,142	+ 1,405
Barrow Corporation	„ 22	538	495	— 42	51	29,562	— 3,321
„ Motor Buses	„ 22	264	318	+ 53	51	19,354	+ 7,723
„ Total	„ 22	802	813	+ 11	51	48,916	+ 4,402
Belfast City	„ 28	10,905	10,875	— 30	51½	575,188	+ 83,309
„ Motor Buses	„ 28	984	1,362	+ 378	51½	59,079	+ 36,865
„ Total	„ 28	11,889	12,237	+ 348	51½	634,267	+ 120,174
Birkenhead Corp.	„ 30	1,755	1,497	— 258	52	84,229	— 39,954
„ Motor Buses	„ 30	3,403	3,133	— 270	52	180,455	+ 31,243
„ Total	„ 30	5,158	4,630	— 528	52	264,684	+ 20,289
Birmingham Corp.	„ 25	27,327	26,387	— 940	51	1,395,447	+ 21,337
„ Motor Buses	„ 25	12,070	14,590	+ 2,520	51	698,455	+ 129,038
„ Trolley Buses	„ 25	559	568	+ 9	51	28,970	+ 982
„ Total	„ 25	39,956	41,545	+ 1,589	51	2,122,872	+ 151,357
Blackburn Corp.	„ 26	1,934	1,750	— 184	51½	98,071	— 5,828
„ Motor Buses	„ 26	Nil	314	+ 314	20½	6,897	+ 6,897
„ Total	„ 26	1,934	2,064	+ 130	51½	104,968	+ 1,069
Bradford Corporation	„ 29	14,239	14,336	+ 97	52	707,135	+ 40,458
Brighton Corporation	„ 30	2,686	2,235	— 451	52	132,164	+ 3,711
Burnley Corporation	„ 29	3,519	2,747	— 772	...	...	...
„ Motor Buses	„ 29	810	643	— 167	...	...	...
„ Total	„ 29	4,329	3,390	— 939	...	...	...
Burton-on-Trent Cpn.	„ 30	805	833	+ 28	52	20,262	+ 7,970
Bury Corporation	„ 31	2,609	2,003	— 606	52¼	101,989	— 10,858
„ Motor Buses	„ 31	452	1,079	+ 627	52¼	33,852	+ 14,857
„ Total	„ 31	3,061	3,082	+ 21	52¼	135,841	+ 3,999
Cardiff Corporation	„ 15	6,992	7,419	+ 427	49½	386,345	+ 11,750
Chatham and District	„ 27	1,087	1,017	— 70	12	12,713	+ 743
Chester Corporation	„ 24	399	Nil	— 399	51¼	19,593	— 2,018
„ Motor Buses	„ 24	Nil	579	+ 579	5½	3,098	+ 3,098
„ Total	„ 24	399	579	+ 180	51¼	22,691	+ 1,080
Chesterfield Corp.	„ 31	2,280	1,925	— 355	52	103,164	+ 3,846
Colchester Corp.	April 2	204	164	— 40	1	164	— 40
Colne Corporation	„ 3	307	237	— 70	¾	237	— 70
Coventry Corporation	Mar. 30	2,222	2,055	— 167	52	111,104	+ 1,982
„ Motor Buses	„ 30	1,564	1,777	+ 213	52	87,554	+ 22,323
„ Total	„ 30	3,786	3,832	+ 46	52	198,658	+ 24,305
Darlington Corp.	„ 29	990	1,045	+ 55	51¾	52,402	+ 1,876
Derby Corporation	„ 29	2,632	2,379	— 253	52	129,145	— 3,331
„ Motor Buses	„ 29	620	860	+ 240	52	40,577	+ 16,288
„ Total	„ 29	3,252	3,239	— 13	52	169,722	+ 12,957
Dover Corporation	„ 31	428	431	+ 3	52	20,950	+ 816
Dundee Corporation	„ 11	3,263	3,303	+ 40	42½	149,581	+ 5,631
East Ham Corp.	„ 29	2,307	2,224	— 83	50½	119,515	+ 5,533
Edinburgh Corp.	„ 22	13,087	13,061	— 26	44¼	637,156	+ 26,368
„ Motor Buses	„ 22	3,014	3,319	+ 305	44¼	155,030	+ 18,060
„ Total	„ 22	16,101	16,380	+ 279	44¼	792,186	+ 44,428
Exeter Corporation	„ 31	563	573	+ 10	52	44,256	+ 522
Glasgow Corporation	„ 29	43,940	43,767	— 173	43	1,908,406	+ 29,319
„ Motor Buses	„ 29	4,923	8,074	+ 3,151	43	275,083	+ 134,695
„ Total	„ 29	48,863	51,841	+ 2,978	43	2,183,489	+ 164,014
Gloucester Corp.	„ 26	525	633	+ 108	51½	31,400	+ 3,401
Grimsby Corporation	„ 29	1,446	1,432	— 14	51½	75,977	+ 7,193
Halifax Corporation	„ 25	4,207	4,857	+ 650	51¼	244,388	+ 23,558
Huddersfield Corp.	„ 29	6,494	6,315	— 179	52	319,406	+ 4,612
Hull Corporation	„ 29	6,070	5,799	— 271	52	313,862	+ 1,406
„ Motor Buses	„ 29	1,321	1,404	+ 83	52	74,181	+ 9,767
„ Total	„ 29	7,391	7,203	— 188	52	388,043	+ 11,173
Ilford Corporation	„ 29	1,486	1,509	+ 23	51⅝	77,964	+ 1,805
Ipswich Corp. Trol.Bus	„ 20	1,326	1,217	— 100	52	66,733	+ 4,506
Isle of Thanet	„ 26	424	365	— 59	12½	4,236	+ 150
Kilmarnock Corp.	„ 29	435	479	+ 44	45½	21,730	+ 1,615
Lancashire Un.	„ 25	2,286	2,223	— 63	11⅛	25,615	— 707
„ Motor Buses	„ 25	3,964	4,555	+ 591	11⅛	53,110	+ 9,057
Leeds Corporation	„ 22	19,058	19,137	+ 79	50½	907,173	+ 36,384
Leicester Corp.	„ 29	8,289	8 225	— 64	52	438,791	+ 22,216
Lincoln Corp.	„ 23	1,010	861	— 149	51	46,954	+ 1,882
Liverpool Corp.	„ 29	29,735	31,123	+ 1,388	51¾	1,560,687	+ 30,366
London County Coun.	April 2	79,089	83,670	+ 4,581	1	83,670	+ 4,581
Luton Corporation	Mar. 26	397	375	+ 22	51¼	20,733	+ 1,367
Maidstone Corp.	„ 27	215	Ni	— 215	51¾	8,037	— 4,306
„ Motor Buses	„ 27	266	243	— 23	51¾	16,063	+ 4,347
„ Trolley Buses	„ 27	291	515	+ 224	51¾	17,030	+ 3,244
„ Total	„ 27	772	758	— 14	51¾	41,730	+ 3,285
Manchester Corp.	„ 29	35,011	32,263	— 2,748	52	1,809,735	+ 13,867
„ Motor Buses	„ 29	5,618	7,861	+ 2,243	52	265,930	+ 43,071
„ Total	„ 29	40,629	40,124	— 505	52	2,075,665	+ 56,938

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS—*Continued.*

Name.	Week ended	Latest Return. 1929	1930	+ or —	Aggregate. Wks.	1929-30.	+ or —
		£	£	£		£	£
Middlesbrough Corp.	Mar. 25	1,111	1,037	— 74	51¾	58,046	— 304
„ Motor Buses	„ 25	452	557	+ 105	51¾	27,507	+ 4,368
„ Total	„ 25	1,563	1,594	+ 31	51¾	85,553	+ 4,064
Newcastle-on-Tv. Corp	„ 29	9,181	8,684	— 497	52	505,124	+ 19,625
„ Motor Buses	„ 29	1,980	2,386	+ 406	52	107,078	+ 11,350
„ Total	„ 29	11,161	11,070	— 91	52	612,202	+ 30,975
Newport Corporation	„ 22	686	732	+ 46	51	38,957	+ 2,885
„ Motor Buses	„ 22	1,701	1,592	— 109	51	85,762	+ 482
„ Total	„ 22	2,387	2,324	— 63	51	124,719	+ 3,367
Northampton Corp.	„ 28	1,292	1,020	— 272	51¾	57,546	— 16,324
„ Motor Buses	„ 28	411	641	+ 230	51¾	34,650	+ 17,826
„ Total	„ 28	1,703	1,661	— 42	51¾	92,196	+ 1,502
Nottingham Corp.	„ 20	6,244	5,458	— 786	50¾	326,786	— 12,187
Motor Buses	„ 20	2,150	2,981	+ 831	50¾	130,417	+ 31,898
„ Trolley Buses	„ 20	567	1,142	+ 575	50¾	32,426	+ 4,031
„ Total	„ 20	8,961	9,581	+ 620	50¾	489,629	+ 23,742
Oldham Corporation	„ 29	3,565	2,680	— 885	1	2,680	— 885
„ Motor Buses	„ 29	2,152	1,413	— 39	1	1,413	— 739
„ Total	„ 29	5,717	4,093	— 1,624	1	4,093	— 1,624
Plymouth Corp.	„ 31	4,121	4,064	— 57	52	192,215	— 3,265
„ Motor Buses	„ 31	2,114	2,571	+ 457	52	105,960	+ 16,132
„ Total	„ 31	6,235	6,635	+ 400	52	298,175	+ 12,867
Portsmouth Corp.	„ 29	6,088	5,824	— 264	52	332,653	+ 21,450
Preston Corporation	„ 26	1,691	1,559	— 132	51¾	87,802	+ 925
„ Motor Buses	„ 26	461	487	+ 26	51¾	25,658	+ 3,124
„ Total	„ 26	2,152	2,046	— 106	51¾	113,460	+ 4,049
Rawtenstall Corp.	„ 30	855	770	— 85	52	43,740	— 2,083
„ Motor Buses	„ 30	673	569	— 104	52	27,439	+ 3,644
„ Total	„ 30	1,528	1,339	— 189	52	71,179	+ 1,561
Reading Corporation	„ 27	1,540	1,381	— 159	52	78,714	+ 589
„ Motor Buses	„ 27	946	856	— 90	52	47,080	+ 2,991
„ Total	„ 27	2,486	2,237	— 249	52	126,394	+ 3,580
Rochdale Corp.	„ 29	3,751	2,612	— 1,139	...	147,577	+ 14,531
„ Motor Buses	„ 29	1,880	1,587	— 293	...	82,574	+ 12,651
„ Total	„ 29	5,631	4,199	— 1,432	...	230,151	— 1,880
Rotherham Corp.	„ 24	2,478	2,661	+ 183	52	142,749	+ 12,443
Salford Corporation	„ 31	11,119	12,987	+ 1,868	52¼	587,426	+ 40,536
Sheffield Corp.	„ 29	20,776	20,845	+ 69	52	1,088,143	+ 37,828
Southampton Corp.	„ 26	3,203	3,183	— 20	51	175,688	+ 9,481
„ Motor Buses	„ 26	650	833	+ 182	51	42,639	+ 11,113
„ Total	„ 26	3,853	4,016	+ 162	51	218,327	+ 20,894
Southend-on-Sea Corp.	April 2	1,274	551	— 722	¾	551	— 722
Southport Corp.	Mar. 31	2,135	1,749	— 386	52	86,369	+ 294
St. Helens Corp.	„ 25	2,001	2,094	+ 93	51¾	105,491	+ 8,008
Sunderland Corp.	„ 31	2,460	2,680	+ 220	52	126,190	+ 5,986
Swindon Corp.	„ 26	614	880	+ 266	51¾	42,957	+ 12,820
Wallasey Corp.	„ 29	1,390	1,107	— 283	52	66,293	— 36,402
„ Motor Buses	„ 29	1,946	1,874	— 72	52	106,857	+ 54,570
„ Total	„ 29	3,336	2,981	— 355	52	173,150	+ 18,168
Walsall Corporation	„ 23	3,292	3,574	+ 282	51	177,410	+ 15,803
Walthamstow Corp.	„ 29	2,409	2,416	+ 7	52	126,231	+ 9,140
Warrington Corp.	„ 27	923	895	— 26	52	46,478	— 962
„ Motor Buses	„ 27	461	471	+ 10	52	23,985	+ 3,531
„ Total	„ 27	1,384	1,386	— 18	52	70,463	+ 2,569
West Ham. Corp.	„ 27	6,071	6,095	+ 24	51¼	315,475	+ 27,420
Wolverhampton Corp.	„ 23	Nil	Nil	Nil	51	Nil	— 15,958
„ Motor Buses	„ 23	2,767	2,313	— 454	51	139,060	+ 14,480
„ Trolley Buses	„ 23	3,139	3,644	+ 505	51	173,864	+ 28,516
„ Total	„ 23	5,906	5,957	+ 51	51	312,924	+ 27,038
York Corporation	„ 19	858	903	+ 45	51	52,586	+ 692
„ Motor Buses	„ 19	353	473	+ 120	51	21,934	+ 5,336
„ Total	„ 19	1,211	1,376	+ 165	51	74,520	+ 6,028

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

Name.	Week or M'th.	Latest Return. 1928-29.	1929-30.	Aggregate. Wks. or *Ms.*	1929-30.	In. or Dec.
Anglo-Argentine	Apr. 1	£81,932	£86,583	13 w	£1,087,503	— £34,797
Brazilian Traction $	Feb.	3,755,709	3,798,098	2 m	7,660,787	+ 12,245
British Columbia $	Jan.	1,256 252	1,354,314	1 m	8,605,787	+ 498,897
Buenos Aires Lacroze	Mar. 30	12,124	12,222	39 w	456,707	— 37,125
Burma E. Sup. Co. Rs.	Feb.	63,808	63,098	7 m	438,968	— 26,772
Calcutta ... Rs.	Mar. 29	116,340	114.205	12¾ w	1,550,096	— 114,119
Cape Town	Feb.	28,274	27,479	...	...	...
Carthagena & Herrerias	Mar.	853	1,003	3 m	3,640	+ 1,083
Durban	Feb.	21,848	21,321	7 m	166,874	+ 2,240
East India	Mar.	3,892	3,863	8 m	30,525	+ 768
Kalgoorlie	Nov.	1,721	1,643	11 m	18,817	— 369
La Plata	Dec.	10,300	10,327	12 m	116,149	+ 2,604
Madras (2 weeks) Rs.	Mar. 31	46,245	45,162	12 w	282,016	+ 21,014
Para	Feb.	14,007	13,628	3 m	42,671	+ 276
Port Elizabeth ...	Feb.	7,478	7,110	...	...	...
Rangoon ... Rs.	Mar.	121,246	104,600	3 m	459,810	+ 107,429
Shanghai ... $	Feb.	294,708	322,473	2 m	685,873	+ 71,945
Singapore ... ...$	Feb.	117,000	128,000	5 m	655,000	+ 92,000
Winnipeg ... ...$	Jan.	607,966	628,979	1 m	628,979	+ 21,013

RAILWAY RECEIPTS.

13th Week ended Mar. 30th	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week.	Inc. or Dec. to Date.
G.W.R.	191,000	— 108,000	354,000	+ 16,000	545,000	— 92,000	— 147,000
L.M.S R.	458,000	— 288,000	836,000	+ 58,000	1,294,000	— 230,000	— 573,000
L.N.E.R.	300,000	— 151,000	685,000	+ 14,000	985,000	— 137,000	— 124,000
S.R.	260,000	— 183,000	111,000	— 7,000	371,000	— 190,000	— 151,000
Totals	1,209,000	— 730,000	1,986,000	+ 81,000	3,195,000	— 649,000	— 995,000

ELECTRIC RAILWAYS.

Name.	Week Ended.	Latest Return. 1929.	1930.	+ or —	Aggregate. 1930.	+ or —
London Underground						
Common Fund Cos.	Mar. 29	287,100	299,800	+ 12,700	3,732,900	+ 333,000
Lond. & Sub. Group	„ 29	42,900	43,100	+ 200	539,600	+ 60,300
Metropolitan Railway	„ 29	36,500	35,900	— 600	471,300	+ 16,500
Liverpool Overhead	„ 30	1,506	1,439	— 67	19,368	— 850
Mersey Railway	„ 29	4,281	4,474	+ 193	61,724	+ 2,147

Digitized by Google

THE
Tramway AND Railway World

FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.
Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates:

FOR THE UNITED KINGDOM—Twenty-five shillings per annum.

FOR ALL PLACES ABROAD—Twenty-five shillings per annum. Postage to Canada, 6s.; to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS

LONDON, APRIL 12, 1930.

THE NECESSITY FOR HIGHER SPEED.

It is too often the case even in towns that the petrol omnibus gives a higher average speed per hour than is the case with tramcars. This is due to the granting of a limit of 20 miles per hour to vehicles fitted with pneumatic tyres, whereas the tramcar is subjected to various limits, ranging on most undertakings from 16 miles per hour downwards. Some managers have long seen the danger of this shortcoming and have obtained increases from the Ministry of Transport. Even in these cases, however, there is need to consider the advisability of securing a still higher limit. This necessity arises from two causes. One is that the passenger does not care to see the car in which he is riding passed by other public service vehicles. The other cause is to be found in the fact that the Road Traffic Bill proposes to give the omnibus and coach a limit of 30 miles per hour. Even that does not satisfy the operators, and they are asking that for vehicles exceeding 2½ tons a speed of 35 miles per hour shall be permitted. Whether the lower or the higher maximum is granted by Parliament, the situation will call for the attention of tramway operators. It will not be possible to ignore a faster competing vehicle. The Ministry of Transport must be approached by individual undertakings with a request for fairer treatment. The greatest justification for an all-round increase is to be found in the fact that the tramcar is the safest vehicle and may be driven at any reasonable speed. Yet the highest average attained does not exceed 10 miles per hour, and that distinction is claimed by a London company undertaking. It should be the aim of managers to attain a higher average than that. There must be a speeding up on suburban sections. In one or two provincial towns there has been improvement of late, and without any complaint that other traffic is endangered. Elsewhere it is too often complained that the tramcar is a sluggard and impediment to faster vehicles. Managers as a body should be fired with some of the enthusiasm that is being brought to bear on the direction of the company tramways of outer London. More than once Mr. C. J. Spencer has insisted at national gatherings that higher speed is essential if public support is to be retained. The companies which he manages, following his experiments of the past few years, have now initiated an active policy of providing not merely more comfortable but faster cars.

THE ROAD TRAFFIC BILL.

MINISTRY OF TRANSPORT INQUIRIES INTO ACCIDENTS.

The Standing Committee of the House of Commons, which is engaged in considering the Road Traffic Bill, on Tuesday discussed Clause 23, which empowers the Minister of Transport to direct an inquiry into the cause of an accident arising "out of the presence of a motor vehicle on a road." Mr. E. Brown moved an amendment that the scope of the inquiry should be so limited as to make it only of a technical character. Mr. Morrison explained that the object of the inquiry would be to discover the cause of the accident as soon as possible after it had occurred, for the benefit of the public. Lord Erskine urged that if the clause stood in its present form the motorist involved in an accident might be tried more than once. Mr. Morrison explained that the purpose of Ministry of Transport inquiries would not be to prove any person guilty, but to obtain information which might be useful for preventing accidents. Mr. Aitchison (Lord Advocate) emphasised that what was contemplated was a private inquiry at once into matters that ought to be investigated in the public interest. Mr. Brown then withdrew his amendment, but moved the insertion of a provision that any report made by or to the Minister as a result of the inquiry shall not be used in evidence by or on behalf of any person against whom legal proceedings are instituted in consequence of the accident. This provision was accepted by the Solicitor-General, and the clause was then agreed to.

Clause 24 dealing with the weights on trailers was also agreed to.

On Thursday Clause 30, which empowers the Minister to make regulations affecting motor vehicles generally and to provide for their inspection, was considered. Lieut.-Col. Ashley pointed out that there was some obscurity in the clause. Mr. Morrison said that the control would be comprehensive. There was no doubt that many motor vehicles now on the road were defective and those defects were responsible for many accidents. The Minister did not intend to use the powers in a vexatious way, and it was a safeguard that he would have to consult representative motoring organisations before regulations were made.

The clause was agreed to.

The Committee then considered Part II of the Bill, which imposed obligations upon owners of motor vehicles to hold insurance policies or other security against third-party risks.

Mr. Morrison said the intention was to provide that where a person was killed or injured through the misfortune of a motor driver there should be no failure to obtain compensation owing to the lack of means of the owner.

After discussion the clause was agreed to.

The Committee also discussed the provision which the House of Lords inserted in the Bill for allocating to the hospitals in which persons injured in motor accidents on the road were treated a sum not exceeding £25 of the insurance for each person treated.

Mr. Morrison thought the provision was alien to the Bill, but the question would be left to the free vote of the Committee The Committee decided by 20 votes to 10 to retain the provision.

NEW TRANSPORT POWERS FOR WALSALL.

The Select Committee of the House of Lords, presided over by the Marquis of Bristol, on April 4 and 5, granted powers to Walsall Corporation to purchase compulsorily the tramway routes from Walsall to Wednesbury and Darlaston, notwithstanding the opposition of West Bromwich and Wednesbury Councils. Proposed extensions of the Walsall boundaries had been agreed as between the local authorities concerned, and Walsall proposes to remove the tramways and substitute motor omnibuses. Evidence in support of the West Bromwich petition against the clause was given by Mr. A. C. Baker, general manager, Birmingham Corporation Tramways. Wednesbury Council also opposed.

Walsall Corporation asked for the removal of the restriction on their power to run omnibuses for special purposes. Such omnibuses can now be run only on authorised routes, and the Corporation asked that the limit should be extended to a radius of fifty miles. The clause was opposed by the L.M.S. Railway and the Birmingham and Midland Omnibus Co. The Committee approved of the clause, but altered the proposed radius of fifty miles to a distance of two miles from any existing authorised route. The power to make agreements with outside bodies was restricted to existing authorised routes.

A clause relating to the control of traffic was passed. It empowers the Corporation to make regulations as to streets to be used by specific vehicles at stated times within a mile of the Town Hall, and also to institute one-way traffic and to appoint stopping places for omnibuses.

Emergency Exit on Double-Deck Omnibuses.—Bolton Tramways Committee has considered a report from the general manager on the regulation proposed to be made by the Minister of Transport requiring an emergency exit on double-deck omnibuses fitted with totally-enclosed staircases. The Committee has decided that the omnibuses be fitted with open staircases instead of enclosed staircases, and the builders, Leyland Motors, Ltd., have agreed to a reduction of price.

Digitized by Google

CHARING CROSS BRIDGE BILL.

THE STATION PART OF THE SCHEME REJECTED.

A Private Bill Committee of the House of Commons continued on Tuesday, Wednesday and Thursday consideration of the London County Council (Charing Cross Bridge) Bill. At the request of the Committee, Mr. F. Palmer, who acted as consulting engineer in the preparation of the scheme, submitted a plan for constructing the station on a site south of Waterloo Station. Sir Herbert Walker, manager of the Southern Railway, said that the company would oppose this plan most strongly.

On Thursday, Sir Henry Cautley, chairman of the Committee, said the great blot on the scheme was the placing of the station at the bridge head, which would cause one street to go over the other, resulting in a number of tunnels and blank walls. That part of the Bill would be rejected. The Committee did not want to tie up this land from development, or to make the position of passengers more irksome than it was bound to be in the removal of the station from Charing Cross. The Strand side of the scheme would be approved if the authorities agreed on the widening of St. Martin's-lane.

The Committee adjourned to permit consideration of the part of the scheme south of the river by the Southern Railway and London County Council. An official of the Southern Railway subsequently stated that the suggestion of any alternative site for the station must cause considerable delay and might kill the scheme altogether. It was only on the understanding that the site was to be approved that the directors of the Southern Railway consented to go in with the London County Council and the Government.

L.C.C. TRAMWAY MATTERS.

FOUR BREAKDOWN LORRIES TO BE PURCHASED.

A recommendation was submitted by the Highways Committee, at the weekly meeting of the London County Council on Tuesday, that four additional breakdown tenders for use in the tramways department be obtained from a selected firm at an estimated cost of £5,500. On April 30, 1929, the Council sanctioned capital estimates of £3,000 for provision of two breakdown tenders combining the duties of carriers of tools and appliances, mobile cranes and tractors for removing obstructions from tramway tracks. These machines had proved very successful in dealing with breakdowns of all descriptions, and had been the means of reducing the length of delays to tramway services. The Committee were of opinion that four other lorries, which had been in use since 1919-20, should be replaced by four breakdown tenders similar to those approved in 1929. The recommendation was adopted.

GRANT TO LONDON SAFETY FIRST COUNCIL.

On the advice of the Highways Committee, the Council, as a tramway authority, decided to subscribe an annual sum of 50 guineas to the London Safety First Council, in addition to such sum as it might decide to contribute as a local authority. Apart from the general considerations involved, the Committee said there was no doubt that the department derived a direct financial benefit by a reduction in the number of accidents in which the tramcars were concerned. An annual grant of 50 guineas would be comparable with the amounts contributed by other transport undertakings.

PERSONAL.

Alderman Pilling has been appointed representative of Colne Corporation on the Mid-Lancashire Electricity Board.

Mr. P. J. Pringle, general manager and chief engineer, Electric Supply Co. of Victoria, Ltd., left Australia on February 25 on a seven months' visit to England.

Mr. R. H. Wilkinson, general manager of Bradford Corporation Tramways, has gone on holiday to Madeira in order to complete his recovery from his recent illness.

Mr. W. B. Woodhouse, engineer and manager of the Yorkshire Electric Power Co., has been appointed a director to fill the vacancy created by the death of Mr. A. G. Lupton.

Mr. George Boots, of Newcastle, has been appointed stores superintendent by the Stores and Transport Committees of Portsmouth Corporation. There were 175 applicants for the position.

Mr. F. A. Orchard has joined the staff of Mr. D. Maxwell Buist, engineer for the Central Electricity Board in the North-East England area. During the past twelve years Mr. Orchard was with Messrs. Merz & McLellan, consulting engineers, Newcastle-on-Tyne.

Mr. Raymond Best, assistant engineer, Birmingham Corporation Tramways and Omnibuses Department, has been appointed maintenance engineer with the British Petroleum Co., Ltd. While at Birmingham, Mr. Best acted as hon. secretary of the local graduates' section of the Institution of Automobile Engineers.

BUSINESS NOTES.

Metropolitan-Vickers Electrical Co., Ltd.—From April 14, the address of the Birmingham office will be: Metropolitan-Vickers Electrical Co., Ltd., Wellington House, 39, Bennett's-hill, Birmingham. Telephone Nos.: Central 2801 and 2802. Telegraphic address: "Multiphase, Birmingham."

The Equipment & Engineering Co., Ltd., 2 and 3, Norfolk-street, Strand, sales agents of Nesta, Ltd., have issued a catalogue describing and illustrating "Nesta" models suitable for railway, omnibus or tramway seats. Modifications or additions can be made to suit special requirements, and the company will quote for any form of seating, according to the customer's design and specification. The models illustrated show a wide range of design.

MISCELLANEOUS NEWS AND NOTES.

Summer Time commences at 3 a.m. on Sunday, April 13. All clocks should be set forward one hour.

At Leipzig fifty tramcars with small tables between the seats have been placed in service.

Liverpool Tramways Committee proposes to purchase 10 Vulcan four-wheel single-deck omnibus chassis for £750 each.

The Metropolitan Tramways Company proposes to construct a new link tramway near Tally Ho Corner, North Finchley, at a cost of £10,000.

Omnibuses for Leeds Corporation.—Leeds Tramways Committee is seeking sanction to borrow £24,000 for the purchase of twelve double-deck omnibuses.

Omnibuses for Birkenhead.—Birkenhead Tramways and Motors Committee recommend the purchase of 20 new omnibuses at an estimated cost of £34,000.

Birmingham Corporation has discontinued the service of tramcars on the Bolton-road route and has replaced them by one-man operated single-deck omnibuses.

Northampton Tramways Committee has decided to dispense with the services of all employees over 70 years of age, and to give a gratuity of £1 for each year of service.

A Halifax Experiment.—The Corporation Tramways are making an experiment with cheaper fares. Cheap tickets are being issued for short journeys on Mondays to Fridays, inclusive, but not on public holidays.

Aberdeen and Trolley Omnibuses.—Aberdeen Tramways Committee is considering the introduction of the trolley omnibus system. The general manager has presented a report on the subject, and the Committee has decided to keep the proposal in view when it may be proposed to abandon any of the tramway routes.

Effect of Depression at Oldham.—A loss of £15,000 for the past year is reported by Oldham Tramways Department. This result is attributed to the depressed condition of trade in the district. The Tramways Committee proposes to recommend the Council to increase fares on Saturday afternoons and Sundays.

The National Joint Council for the tramway industry has agreed that the trade unions may negotiate with tramway managements for an experimental five-day week for night-men employed on track work. The Transport and General Workers' Union maintains that the experiment will prove that the five-day week is economical.

Municipal Tramways and Petrol.—For some time efforts have been made by municipal tramway departments to secure concessions in the price of petrol, and on Thursday a conference was held in London between representatives of the petrol combine and the Municipal Tramways and Transport Association. It is understood that no definite arrangement was reached.

Aldershot Traction Co. has obtained six new omnibuses from Dennis Bros., Ltd., of Guildford, and seven more are to follow. The colour scheme is apple green and cream. In the upper saloon all seats have been arranged in the centre with a gangway on either side. An electric light is placed over each seat. There is an emergency exit on the off side near the driver.

Free Travelling for School Children.—Hull Education Committee has decided to pay the tramway fares of children travelling between the schools and playing fields. The decision is stated to affect 24,000 children, and the cost will be £1,197 a year. It is also proposed to pay the fares of older girls who will be sent out shopping from school as part of their training in domestic science.

A Hull Licence Refusal Upheld.—At a meeting of Hull Watch Committee, the town clerk reported that an inquiry was held on behalf of the Minister of Transport, with regard to the refusal of the Corporation to grant a licence to Mr. G. Galley for an omnibus service between Hull and Newcastle. The Corporation opposed the application on the ground of congestion. The Minister had decided to make no order.

Greater London Regional Planning Committee has published its first report (5s. net). It includes many maps, plans and diagrams, designed to make the report an invaluable guide to the planning of any region. The area covered by the Committee is, however, compressed within a radius of 25 miles from Charing Cross, the London and Home Counties traffic area, as set out in the Traffic Act of 1924.

Replacement of Cheltenham Tramways.—A beginning has been made with the removal of the tramways in Cheltenham. An arrangement, as previously noted, has been reached between Cheltenham Traction Co. and the Corporation, by which the company will remove the tracks and pay 5s. 6d. per yard towards the cost of the work, which is being carried out by the Corporation. The present scheme provides for the relaying of a portion of Leckhampton-road from the tramway terminus to High-street, and Cleevehill-road to Prestbury. The plan is to complete these routes by April, 1931.

Liverpool Proposal for Free Travel for Pensioners.—Recently the City Council referred to the Tramways Committee the proposal that over 14,000 old-age pensioners aged 70 and over should be allowed to travel free on the Liverpool tramways. The general manager, Mr. P. Priestly, has submitted a report on the proposal, showing that assuming each old-age pensioner averaged one journey a day, the value of the free facilities would amount to £27,000 a year. The Committee, by a substantial majority, has approved the principle of granting free travel, and has directed the manager to prepare a scheme for giving the facilities for a trial period of three months from June 1. This recommendation will come before the Council in May.

Digitized by Google

The Majestic Motor Bus Services, whose headquarters are at Preston, have been taken over by the London, Midland and Scottish Railway Company. The company owns 17 omnibuses, and runs services to Long Ridge, Garstang and Blackpool.

Children's Tickets at Liverpool.—Liverpool City Council has decided to issue 1d. return tickets for children during the Easter holidays, so that they may have access to the city parks. Mr. F. C. Wilson, chairman of the Tramways Committee, objected to the proposal chiefly because of the losses of revenue sustained last summer when cheap facilities were granted to children. On the Walton route, he said, they lost £600.

Proposed Trolley Omnibuses for Preston.—Preston Tramways Committee, at a special meeting on April 5, considered a report on the cost of converting the tramways into a trolley omnibus system. The route selected for the commencement is that from Penwortham Old Bridge to Faringdon Park, a distance of 3¾ miles. The estimated capital cost is about £25,000. The Committee will submit the proposal to the Council at its meeting on April 30.

L.C.C. Tramwaymen and "Safety First."—The London County Council has decided to make a grant of 12s. 6d., which approximates to a day's pay, to employees in the Tramways Department who qualify for awards under the annual "Freedom from Accidents" competition organised by the London Safety First Council. During the three years from 1927 to 1929, 806 employees entered for the competition, of whom 535 obtained awards. In addition, four received the meritorious service medal and diploma and two guineas for stopping runaway horses.

Designs for Petrol Stations.—The Incorporated Association of Architects and Surveyors have started a competition to encourage the study and development of petrol stations planned to meet the commercial requirements of distributors, but which may at the same time not detract from the beauty of the natural surroundings. Cash prizes ranging from 50 guineas will be offered, and the competition will be judged by independent assessors, and is to be open to British architects throughout the world. The inclusion of signs in the designs will be compulsory.

Llanelly Corporation Purchases the Tramways.—Llanelly Borough Council have decided to buy the interest of the Llanelly & District Electric Supply Co., together with running powers over routes within the borough and certain villages, for £25,000. Under the agreement with the company the latter is to continue its promotion of a Parliamentary Bill for extending its powers within and outside the borough. The Corporation is to receive from the company a special rate of ⅞d. per unit for electric energy supplied during the first year, after which the rate will be 1d. per unit. When Parliamentary sanction is obtained the Corporation intends to replace the tramway cars with trolley omnibuses. The purchase of the tramways and new trolley omnibuses will involve an expenditure of about £70,000.

The World Power Conference.—The British International Committee of the World Power Conference (63, Lincoln's Inn Fields, W.C.2) has issued a booklet giving particulars of the second plenary meeting to be held in Berlin from June 16-25 next. The pamphlet includes a provisional time-table, a complete list of the 44 British papers which have been prepared, all information regarding ordinary arrangements and the official tours. Those who have not already registered and desire to do so are urged to make application without delay so that accommodation may be reserved. The Conference will undoubtedly be the greatest representative international meeting of power personalities ever held. Arrangements have been completed by the German organising committee with a very large number of German industrialists and others so that gasworks, power stations, iron and steel works, etc., will be open for inspection.

Improved Cars for Hull.—Hull City Council has authorised the manager to arrange for the upholstering of the seats of ten tramcars at a cost of £123. Councillor Lefley, contending that the expenditure was a needless waste of money, said that the people wanted speed rather than comfort. The cars would need an additional 31 passengers a day to pay for the proposed expenditure. Councillor Stark said that there was a great deal of unfair omnibus competition, and the upholstering might be regarded as a test. The improved cars would just about equip one route. Alderman Mell, chairman of the Tramways Committee, said that many people had not got common sense. They paid 3d. for a journey by omnibus instead of taking a 1½d. tramcar ride and so help to reduce the rates. By a large majority the Council accepted the recommendation. It is reported that the department will have a surplus of nearly £11,000 for the year ended March 31 last. The surplus for 1928-29 was £1,136.

Wages of Omnibus Employees at Birmingham.—A report was recently published in Birmingham alleging that grave unrest existed among the 3,000 drivers and conductors employed by Birmingham Corporation. Mr. A. C. Baker, general manager of the Tramways and Omnibus Department, has denied the rumour, and has explained that a formal application for consideration of a proposal that wages should be increased has been made by employees numbering about one thousand. The matter has been before the Tramways Committee for some time, and the Committee is still considering it. The tramways side of the undertaking is covered by agreements made by the National Joint Industrial Council, but no similar agreements have been made for omnibus drivers and conductors. Mr. Baker added that the omnibus men were as well paid as those of any other municipality. At a recent meeting of the omnibus employees it was stated that the men were satisfied so far with the progress made in negotiations.

CONTRACTS.

Glasgow Transport Committee has placed orders for copper trolley wire with Frederick Smith & Co., Ltd., of Manchester, and T. Bolton & Sons.

The Brush Electrical Engineering Co., Ltd., is supplying four double-deck car bodies with trucks and brakes to East Ham Corporation Tramways.

Colchester Transport Committee has recommended acceptance of the tender of the Associated Equipment Co., Ltd., for one 32-seat saloon-type omnibus body at £480.

J. W. Courtenay, Ltd., of Amberley House, Norfolk-street, London, W.C.2, have been appointed sole advertising contractors to the Burton-on-Trent Corporation Transport Department.

Bradford Tramways Committee has accepted the tender of Brown Bayley's Steel Works, Ltd., for the supply of steel axles at £156, and of Thomas Bolton & Sons, Ltd., for the supply of 20 drums of copper trolley wire.

Airvac Ventilators have received the following contracts:—South Indian Railway, 612 Airvacs, Type "R," 68 Airvacs, Type "RM," with 42 interior fittings. The carriages for which these are being supplied are being built by Metropolitan Cammell Carriage Wagon and Finance Co., Ltd., and are for service in connection with the Madras electrification scheme. Orders have also been received from the Canadian Pacific Railway for 250 Airvacs, Type "R," and for Type "R" Airvacs for the Pullman Car Co., Ltd.

FINANCIAL.

Rangoon Electric Tramway and Supply Co., Ltd.—The directors recommend a final dividend on the ordinary shares at the rate of one rupee four annas per share, free of Indian income tax.

Smaller Deficiency at East Ham.—The estimated deficiency on the working of East Ham Corporation Tramways for the year ending March 31, 1930, is £6,500, or £287 less than for the preceding year.

Relief for Bournemouth Rates.—The Tramways Committee has recommended that a sum equivalent to the production of a half-penny rate be transferred from the accounts for 1929-30 towards reduction of the borough rate. A penny rate yields about £5,600.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended April 9 amounted to £83,113, an increase of £1,801 compared with the corresponding week of last year. The route length was 165.55 miles, as compared with 166.29 a year ago. From April 1 (the commencement of the financial year) to April 9 (1 2-7 weeks) the total receipts were £108,273, an increase of £3,005.

Municipal Transport Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended March 22 give total receipts of £402,116, or £1,138 more than in the corresponding week of last year. The aggregate receipts for 51 weeks amounted to £21,117,685, an increase of £992,867 over the corresponding period of last year.

Nottingham Corporation Tramways, which last year gave £26,480 towards the relief of rates, will this year make no contribution. The receipts for the past year formed a record, and the department obtained a reduction of £10,000 from the Electricity Committee in the charge for energy, but, for the first time since the Corporation purchased the undertaking, it has not been found practicable to make a contribution to the rates.

Middlesbrough Corporation Tramways.—Councillor Wesley Brown, introducing the Middlesbrough Corporation budget, referred to the tramways as having made a loss of £7,777 for the past year, after providing £19,655 for interest and loan redemption. The tramways were subjected to fierce competition under conditions which were not fair. The opposing omnibus owners were not paying a rate of wages anything like the wages paid by the Corporation under a national agreement.

British Thomson-Houston Co., Ltd., reports a trading profit for 1929 of £458,381, which compares with £422,729 for 1928. After meeting debenture and loan interest, depreciation, etc., the net profit is shown at £166,196, as against £150,554. Both as regards the orders secured and the factory output the results were better than in 1928. The directors add that excessive competition at home and abroad continues to keep prices at an unreasonably low level. It is proposed to pay a dividend of 5 per cent. on the ordinary shares, against 4 per cent.

Bath Electric Tramways.—The report for the year ended December 31, 1929, shows that the traffic and other receipts amounted to £64,994, the dividends and interest to £2,713, making a total of £67,707. Expenses totalled £48,729, leaving a balance of £18,978. Adding £3,793 brought forward and deducting £4,892, the interest on debentures, £1,000, instalment on sinking fund interest, and £3,750, dividend on preference shares, there is a balance of £13,130. From this amount £6,000 has been transferred to contingencies and renewals fund, leaving £7,130, which has been appropriated as follows:—Dividend reserve, £2,713; carried forward to provide for contingencies and replacements, £4,417. Out of the dividend reserve account, which now amounts to £3,349, payment of a dividend is recommended at 3½ per cent. on preferred ordinary shares, absorbing £2,646, leaving £703 to be carried forward. The directors state that it is owing to unsatisfactory weather conditions at the beginning and end of the year, trade depression and unemployment that the receipts decreased. The directors allude with regret to the death in February last of Mr. A. Campbell Swinton, F.R.S., M.Inst.C.E.

Digitized by Google

English Electric Co., Ltd.—The report for the year ended December 31, 1929, shows a working profit of £71,343. After providing for the interest on mortgage and debenture stock and other expenses there is a loss of £47,211. The corresponding figure for 1928 was a loss of £33,616. The total accumulated debit balance on profit and loss account is now £480,727. The scheme of financial reorganisation recently approved by shareholders and debenture holders now awaits the sanction by the Court. The meeting will be held on April 17.

Records at Brighton.—The Corporation Tramways have again made new records. In the financial year 1929-30 the undertaking carried 25,168,992 passengers, nearly a million more than in the previous year. There has been no increase in the length of route, but the expansion of Brighton is the explanation of the increased traffic. The revenue is also a record, the total earnings at £132,466 being £4,000 more than in 1928-29. The Tramways Committee has not aimed at making a profit, and has kept the fares as low as practicable. The fares are, indeed, at the lowest point yet reached. Last year the undertaking contributed £8,000 to the relief of rates, and it is anticipated that the amount this year will be £10,000.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

Name.	Week ended	Latest Return. 1929	1930	+ or −	Wks	Aggregate. 1929-30	+ or −
		£	£	£		£	£
Aberdare U.D.C.	Mar. 31	589	594	+ 5	52	31,172	+ 3,031
„ Motor Buses	„ 31	211	236	+ 25	52	13,685	+ 2,062
„ Total	„ 31	800	830	+ 30	52	44,857	+ 5,093
Aberdeen Corp.	Apr. 2	4,378	4,458	+ 80	44¾	215,422	+ 16,046
Ashton-u-Lyne Corp.	„ 5	923	827	− 96	1	827	− 96
„ Motor Buses	„ 5	516	469	− 47	1	469	− 47
„ Trolley Buses	„ 5	300	278	− 22	1	278	− 22
„ Total	„ 5	1,739	1,574	− 165	1	1,574	− 165
Ayr Corporation	„ 5	591	502	− 89	46	26,644	+ 1,316
Barrow Corporation	Mar. 22	538	495	− 42	51	29,562	− 3,321
„ Motor Buses	„ 22	264	318	+ 53	51	19,354	+ 7,723
„ Total	„ 22	802	813	+ 11	51	48,916	+ 4,402
Belfast City	Apr. 4	6,344	6,772	+ 428	¾	6,772	+ 428
„ Motor Buses	„ 4	583	834	+ 251	¾	834	+ 251
„ Total	„ 4	6,927	7,606	+ 679	¾	7,606	+ 679
Birkenhead Corp.	„ 6	1,778	1,549	− 229	¾	1,309	− 469
„ Motor Buses	„ 6	3,314	3,232	− 82	¾	2,764	− 550
„ Total	„ 6	5,192	4,881	− 311	¾	4,073	− 1,019
*Birmingham Corp.	„ 1	27,171	27,020	− 151	52	1,418,610	+ 14,781
„ Motor Buses	„ 1	12,319	15,166	+ 2,847	52	711,559	− 128,260
„ Trolley Buses	„ 1	551	569	+ 18	52	29,460	+ 871
„ Total	„ 1	40,041	42,755	+ 2,714	52	2,159,629	+ 143,912
Blackburn Corp.	„ 2	2,809	1,776	− 1,033	52	99,326	− 6,679
„ Motor Buses	„ 2	Nil	325	+ 325	21¾	7,124	+ 7,124
„ Total	„ 2	2,809	2,101	+ 708	52	106,450	+ 445
Bradford Corporation	Mar. 29	14,239	14,336	+ 97	52	767,135	+ 40,458
Brighton Corporation	Apr. 7	2,439	2,255	− 184	¾	1,953	− 486
Burnley Corporation	„ 5	3,129	2,972	− 157	—	...	...
„ Motor Buses	„ 5	571	742	+ 171	...	...	...
„ Total	„ 5	3,700	3,714	+ 14	...	...	...
Burton-on-Trent Cpn.	„ 6	794	918	+ 124	1	918	+ 124
Bury Corporation	„ 6	2,159	1,582	− 577	¾	1,582	− 577
„ Motor Buses	„ 6	342	921	+ 579	¾	921	+ 579
„ Total	„ 6	2,501	2,503	+ 2	¾	2,503	+ 2
Cardiff Corporation	Mar. 29	7,923	7,286	− 637	51¾	390,403	+ 9,585
Chatham and District	Apr. 3	1,236	1,114	− 122	13	13,897	+ 691
Chester Corporation	„ 6	424	Nil	− 424	1	Nil	− 424
„ Motor Buses	„ 6	Nil	597	+ 597	1	597	+ 597
„ Total	„ 6	424	597	+ 173	1	597	+ 173
Chesterfield Corp.	„ 7	1,946	1,965	+ 19	1	1,965	+ 19
Colchester Corp.	„ 9	506	552	+ 46	2	716	+ 7
Colne Corporation	„ 9	662	660	− 2	1¾	897	− 72
Coventry Corporation	„ 6	2,414	2,063	− 351	1	2,063	− 351
„ Motor Buses	„ 6	1,700	1,811	+ 111	1	1,811	+ 111
„ Total	„ 6	4,114	3,874	− 240	1	3,874	+ 240
Darlington Corp.	„ 5	1,013	1,057	+ 34	52¼	52,651	+ 1,973
Derby Corporation	„ 5	2,560	2,535	− 25	52	129,688	− 3,015
„ Motor Buses	„ 5	631	896	+ 265	52	40,760	+ 16,424
„ Total	„ 5	3,191	3,431	+ 240	52	170,448	+ 13,409
Dover Corporation	„ 5	365	293	− 72	⅝	293	− 72
Dundee Corporation	„ 1	3,537	3,344	− 193	45¾	157,452	+ 5,835
East Ham Corp.	„ 5	2,253	2,321	+ 68	52	120,051	+ 5,463
Edinburgh Corp.	Mar. 29	14,244	13,841	− 403	45½	650,997	+ 25,964
„ Motor Buses	„ 29	3,249	3,413	+ 164	45½	158,442	+ 18,224
„ Total	„ 29	17,493	17,254	− 239	45½	809,439	+ 44,188
Exeter Corporation	Apr. 9	850	825	− 25	1½	1,054	− 235
Glasgow Corporation	Mar. 29	43,940	43,767	− 173	43	1,908,406	+ 29,319
„ Motor Buses	„ 29	4,923	8,074	+ 3,151	43	275,083	+ 134,695
„ Total	„ 29	48,863	51,841	+ 2,978	43	2,183,489	+ 164,014
Gloucester Corp.	„ 31	422	471	+ 49	52½	31,871	+ 3,450
Grimsby Corporation	Apr. 5	1,017	1,181	+ 164	½	1,181	+ 164
Halifax Corporation	Mar. 25	4,207	4,857	+ 650	51¼	244,388	+ 23,558
Huddersfield Corp.	Apr. 5	7,716	6,292	− 1,424	1	6,292	− 1,424
Hull Corporation	„ 5	4,551	4,709	+ 158	1	4,709	+ 158
„ Motor Buses	„ 5	938	1,060	+ 122	1	1,060	+ 122
„ Total	„ 5	5,489	5,769	+ 280	1	5,769	+ 280
Ilford Corporation	„ 5	1,464	1,520	+ 56	⅝	1,178	+ 144
Ipswich Corp. Trol.Bus	Mar. 29	1,326	1,217	− 100	52	66,733	+ 4,506
Isle of Thanet	Apr. 2	976	402	− 574	13½	4,639	− 424
Kilmarnock Corp.	„ 5	447	482	+ 35	46½	22,212	+ 1,651
Lancashire Un.	Mar. 30	2,588	2,183	− 405	12¾	27,792	− 1,100
„ Motor Buses	„ 30	5,075	4,603	− 472	12¾	57,710	+ 8,741
Leeds Corporation	April 5	19,883	19,819	− 64	¾	15,182	+ 1,183
Leicester Corp.	„ 5	8,309	8,411	+ 102	1	6,484	+ 607
Lincoln Corp.	„ 6	951	783	− 168	1	783	+ 168
Liverpool Corp.	„ 5	30,012	30,253	+ 241	52	1,567,650	+ 31,902
London County Coun.	„ 9	81,312	83,113	+ 1,801	1¼	108,273	+ 3,005
Luton Corporation	Mar. 31	287	332	+ 45	52	21,065	+ 1,412
Maidstone Corp.	Apr. 3	488	Nil	− 488	¾	Nil	− 488
„ Motor Buses	„ 3	277	371	+ 94	¾	371	+ 94
„ Trolley Buses	„ 3	327	1,082	+ 755	¾	1,082	+ 755
„ Total	„ 3	1,092	1,453	+ 361	¾	1,453	+ 361
Manchester Corp.	Mar. 29	35,011	32,263	− 2,748	52	1,809,735	+ 13,867
„ Motor Buses	„ 29	5,618	7,861	+ 2,243	52	265,930	+ 43,071
„ Total	„ 29	40,629	40,124	− 505	52	2,075,665	+ 56,938

* Traffic receipts of the Birmingham Corporation Tramways and Omnibus Department for the week ended April 1 show a considerable drop in the aggregate increase compared with the previous week. This is due to the fact that in November last a change was made in the method of assessing the week's receipts to bring them into line with the pay-week which ends on Tuesday. This has meant that in the financial adjustment at the end of the year, six days receipts of this year, i.e., from March 26 to March 31 inclusive, remain to be compared with eight days of the previous year, i.e., from March 24 to March 31

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS—*Continued.*

Name.	Week ended	Latest Return. 1929	1930	+ or −	Aggregate. Wks.	1929-30.	+ or −
		£	£	£		£	£
Middlesbrough Corp.	Apr. 1	1,133	1,073	− 60	52	58,974	− 181
„ Motor Buses	„ 1	511	568	+ 57	52	27,998	+ 4,481
„ Total	„ 1	1,644	1,641	− 3	52	86,972	+ 4,300
Newcastle-on-Ty. Corp	„ 5	7,120	6,963	− 157	⅝	6,963	− 157
„ Motor Buses	„ 5	1,548	1,913	+ 365	⅝	1,913	+ 365
„ Total	„ 5	8,668	8,876	+ 208	⅝	8,876	+ 208
Newport Corporation	Mar. 29	779	724	− 55	52	39,681	+ 2,830
„ Motor Buses	„ 29	1,735	1,566	− 169	52	87,328	+ 313
„ Total	„ 29	2,514	2,290	− 224	52	127,009	+ 3,143
Northampton Corp.	Apr. 4	999	626	− 373	¾	626	− 373
„ Motor Buses	„ 4	331	363	+ 32	¾	363	+ 32
„ Total	„ 4	1,330	989	− 341	¾	989	− 341
Nottingham Corp.	Mar. 31	10,139	9,061	− 1,078	52	335,846	− 13,265
„ Motor Buses	„ 31	3,234	5,024	+ 1,790	52	135,442	+ 33,688
„ Trolley Buses	„ 31	822	1,908	+ 1,086	52	34,334	+ 5,116
„ Total	„ 31	14,195	14,992	+ 1,708	52	505,622	+ 25,539
Oldham Corporation	Apr. 5	3,567	3,546	− 21	2	6,226	− 906
„ Motor Buses	„ 5	2,102	1,955	− 148	2	3,369	− 886
„ Total	„ 5	5,670	5,501	− 169	2	9,595	− 1,792
Plymouth Corp.	„ 5	2,898	3,055	− 157	⅝	3,055	+ 157
„ Motor Buses	„ 5	1,494	1,878	+ 384	⅝	1,878	+ 384
„ Total	„ 5	4,392	4,933	+ 541	⅝	4,933	+ 541
Portsmouth Corp.	„ 5	6,511	6,677	+ 166	1	6,677	+ 166
Preston Corporation	„ 2	772	469	− 303	¾	469	− 303
„ Motor Buses	„ 2	219	145	− 74	¾	145	− 74
„ Total	„ 2	991	614	− 377	¾	614	− 377
Rawtenstall Corp.	Mar. 30	855	770	− 85	52	43,740	− 2,083
„ Motor Buses	„ 30	673	569	− 104	52	27,439	+ 3,644
„ Total	„ 30	1,528	1,339	− 189	52	71,179	+ 1,561
Reading Corporation	Apr. 3	613	596	− 17	¾	596	− 17
„ Motor Buses	„ 3	351	376	+ 25	¾	376	+ 25
„ Total	„ 3	964	972	+ 8	¾	972	+ 8
Rochdale Corp.	„ 5	2,964	2,706	− 258	...	2,063	− 619
„ Motor Buses	„ 5	1,612	1,595	− 17	...	1,191	− 188
„ Total	„ 5	4,576	4,301	− 275	...	3,254	− 807
Rotherham Corp.	Mar. 31	3,062	2,785	− 277	52	145,534	+ 12,166
Salford Corporation	Apr. 6	11,348	11,409	+ 61	1	11,409	+ 61
Sheffield Corp.	„ 5	21,743	20,989	− 354	⅝	20,989	− 354
Southampton Corp.	„ 2	1,661	950	− 711	1	950	− 711
„ Motor Buses	„ 2	315	246	− 69	1	246	− 69
„ Total	„ 2	1,976	1,196	+ 780	1	1,196	− 780
Southend-on-Sea Corp.	„ 9	2,028	1,934	− 94	1½	2,486	− 816
Southport Corp.	„ 5	1,272	1,225	− 47	⅝	1,225	− 47
St. Helens Corp.	Mar. 31	1,848	1,790	− 58	52	107,281	+ 6,950
Sunderland Corp.	Apr. 8	2,881	2,647	− 234	1	2,647	− 234
Swindon Corp.	„ 2	167	236	+ 69	¾	236	+ 69
Wallasey Corp.	„ 5	1,430	1,155	− 275	⅝	901	− 75
„ Motor Buses	„ 5	2,190	1,960	− 230	⅝	1,488	+ 101
„ Total	„ 5	3,620	3,115	− 505	⅝	2,389	+ 26
Walsall Corporation	Mar. 30	3,600	3,475	− 125	52	180,885	+ 15,678
Walthamstow Corp.	Apr. 5	2,425	1,843	− 582	¾	1,843	− 582
Warrington Corp.	„ 2	913	911	− 2	1	911	− 2
„ Motor Buses	„ 2	454	505	+ 51	1	505	+ 51
„ Total	„ 2	1,367	1,416	+ 49	1	1,416	+ 49
West Ham. Corp.	„ 3	6,046	6,238	+ 192	¾	2,669	− 1,010
Wolverhampton Corp.	Mar. 30	Nil	Nil	Nil	52	Nil	− 15,958
„ Motor Buses	„ 30	2,900	2,398	− 502	52	141,457	+ 13,978
„ Trolley Buses	„ 30	3,221	3,726	+ 505	52	177,591	+ 29,022
„ Total	„ 30	6,121	6,124	+ 3	52	319,048	+ 27,042
York Corporation	„ 31	1,616	1,655	+ 39	52	54,242	+ 730
„ Motor Buses	„ 31	604	832	+ 228	52	22,767	+ 5,565
„ Total	„ 31	2,220	2,487	+ 267	52	77,009	+ 6,295

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

Name.	Week or M'th.	Latest Return. 1928-29.	1929-30.	Aggregate. Wks. or *Ms.*	1929-30.	In. or Dec.
Anglo-Argentine	Apr. 8	£94,073	£80,622	14 w	£1,177,125	− £39,248
Brazilian Traction $	Feb.	3,755,709	3,798,698	2 *m*	7,660,787	+ 12,245
British Columbia $	Feb.	1,192,871	1,246,551	8 *m*	9,852,338	+ 552,577
Buenos Aires Lacroze	Apr. 6	13,121	12,498	40 w	469,205	− 37,748
Burma E. Sup. Co. Rs.	Feb.	63,808	63,098	7 *m*	438,968	− 26,772
Calcutta ... Rs.	Apr. 5	122,671	110,619	13¼ w	1,866,715	− 126,171
Cape Town ...	Feb.	28,274	27,479	...	...	...
Carthagena & Herrerias	Mar.	853	1,003	3 *m*	3,640	+ 1,083
Durban ...	Feb.	21,848	21,321	7 *m*	166,874	+ 2,240
East India ...	Mar.	3,892	3,863	8 *m*	30,525	+ 768
Kalgoorlie ...	Dec.	1,900	1,801	12 *m*	20,618	− 468
La Plata ...	Dec.	10,300	10,327	12 *m*	116,149	+ 2,604
Madras (2 weeks) Rs.	Mar. 31	46,245	45,162	12 w	282,016	+ 21,014
Para ...	Feb.	14,007	13,628	3 *m*	42,671	+ 276
Port Elizabeth	Feb.	7,478	7,110	...	...	...
Rangoon ... Rs.	Mar.	121,246	164,600	3 *m*	459,810	+ 107,429
Shanghai ... $	Mar.	339,785	377,849	3 *m*	1,063,722	+ 110,009
Singapore ... ...$	Mar.	133,000	143,000	6 *m*	798,000	+ 102,000
Winnipeg ... ...$	Feb.	570,895	567,569	2 *m*	1,196,548	+ 17,687

RAILWAY RECEIPTS.

14th Week ended Apr. 6th	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week.	Inc. or Dec. to Date.
G.W.R.	210,000	− 30,000	344,000	+ 58,000	554,000	+ 28,000	− 119,000
L.M.S.R.	457,000	− 76,000	832,000	+ 147,000	1,289,000	+ 71,000	− 502,000
L.N.E.R.	308,000	− 61,000	682,000	+ 124,000	990,000	+ 63,000	− 61,000
S.R.	284,000	− 37,000	110,000	+ 31,000	394,000	− 6,000	− 157,000
Totals	1,259,000	− 204,000	1,968,000	+ 360,000	3,227,000	+ 156,000	− 839,000

ELECTRIC RAILWAYS.

Name.	Week Ended.	Latest Return. 1929.	1930.	+ or −	Aggregate. 1930.	+ or −
London Underground						
Common Fund Cos.	Apr. 5	294,100	306,700	+ 12,600	4,039,600	+ 345,600
Lond. & Sub. Group	„ 5	43,700	44,100	+ 400	583,700	+ 60,700
Metropolitan Railway	„ 5	37,400	38,600	+ 1,200	509,900	+ 17,700
Liverpool Overhead	„ 6	1,627	1,414	− 213	20,782	− 1,063
Mersey Railway	„ 5	4,684	4,661	− 23	66,385	+ 2,124

Digitized by Google

THE Tramway & Railway World
WITH OMNIBUS & COACH SECTION
Founded 1892 LONDON, APRIL 17, 1930 VOL. LXVII

HIGH PRESSURE DIRECT-CURRENT FOR RAILWAYS.

ADVANTAGES OF THE HIGH LINE VOLTAGES ADOPTED ON SOME FOREIGN SYSTEMS.

Rapid progress in railway electrification during the past few years has inevitably given rise to diverse views in regard to the line voltage which can most usefully be employed. As a consequence there are in existence systems operated at pressures varying from 500 to 4,000 volts. In this country, largely owing to local conditions, direct current at low pressure has been

Train with Brown Boveri 385 H.P. Motor Coach on a Viaduct of the Chur Arosa Railway (2,200 volts).

most favoured, and our great suburban systems are operated by these means with third rail transmission. On the European and American continents, however, the tendency has been, and is, to resort to the higher pressures. In some notes on the subject contributed to this journal, Mr. R. W. Miller, of Witten-on-Ruhr, presents some aspects of high-pressure direct-current railway operation, the consideration of which is not without interest.

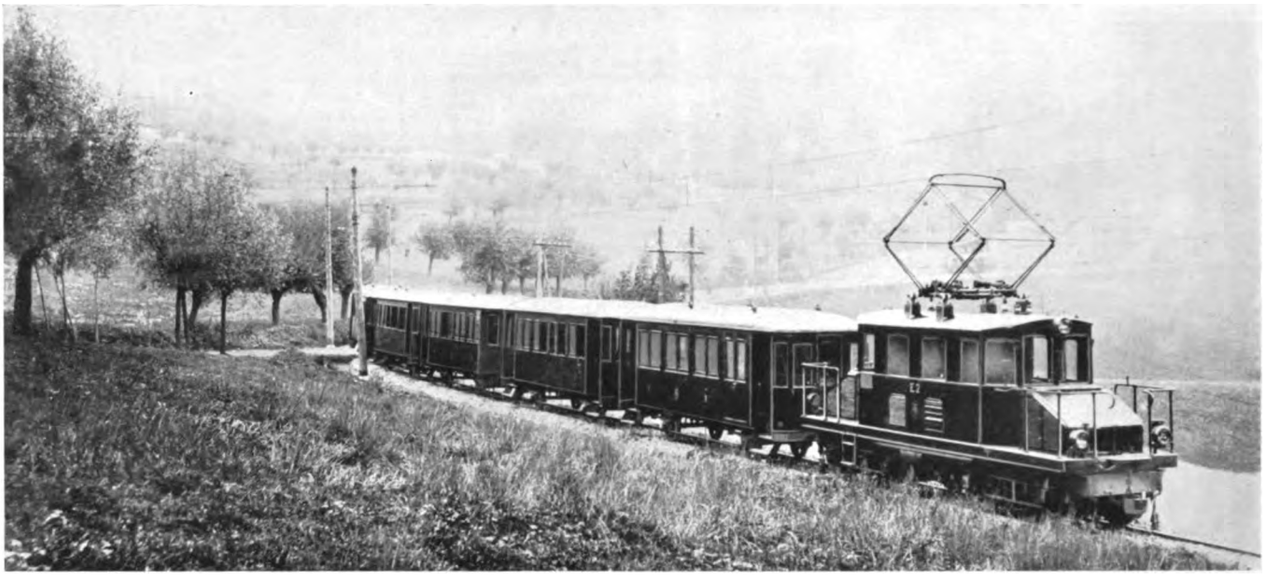
Initially he observes that, by doubling the pressure of the line, it is possible to reduce either the number of the sub-stations or the cross-sectional area of the contact wire to the fourth part without disadvantage from the point of view of distribution of energy. So far as capital expenditure is concerned this becomes of special importance, because of the reduced cross-sectional area of the feeders and the saving effected in stationary plant.

When their number is reduced, sub-stations are used to better advantage for a given section of line, because of the greater extent of the section fed. The capacity of a sub-station being determined not by the average but by the peak requirements, it follows that stand-by plant distributed over a large number of sub-stations is less economic. This applies particularly to systems where normal traffic is slight, because with an increase in the number of sub-stations the potential output of the stand-by plant is of necessity increased, and because, in each sub-station, a certain stand-by must

Digitized by Google

be in existence. The individual output of the numerous sub-stations at low-pressure is not, however, inferior to that of the few which will suffice at higher pressure. Moreover, while the stand-by plant which must be provided in each sub-station becomes very little smaller when the number of sub-stations is increased, the total plant is practically unaffected by any reduction in the output of the sub-station which it controls.

One of the particular advantages offered by high pressure in the contact wire applies to current converters, the dimensions and the price of which depend more upon current than pressure. A converter with

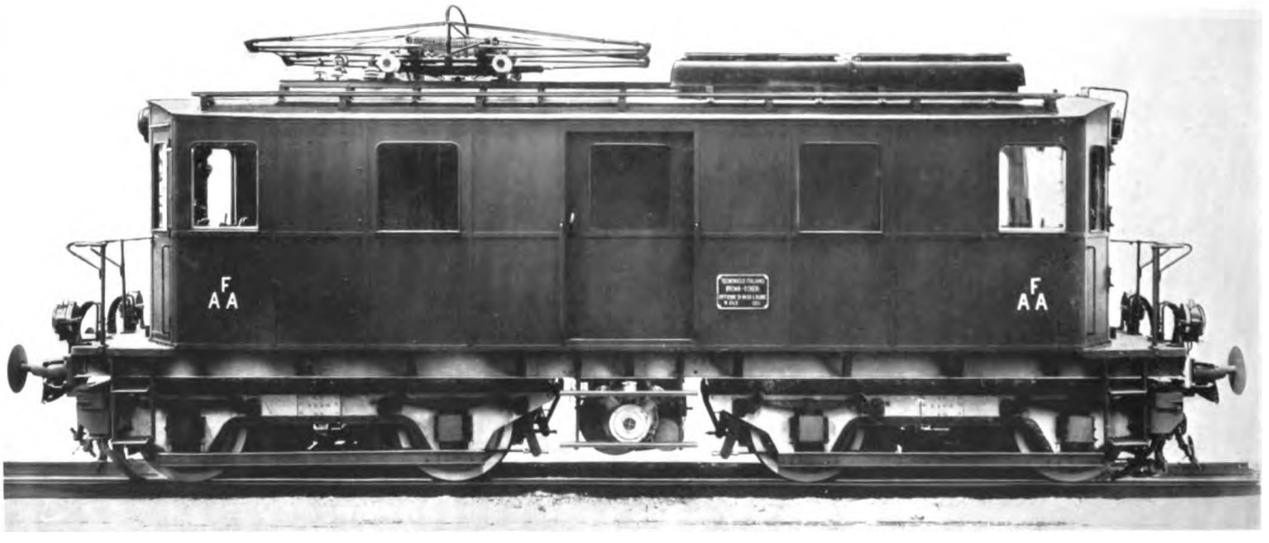


380 H.P. Brown Boveri Locomotive and Train—Pinerolo Perosa Railway (2,200 volts).

potential output is necessarily greater with a larger number of sub-stations.

This is of special importance in cases where the required output of a sub-station can be conveniently met by one or two machine sets which can cope with loads up to 2,000 KW. In such cases the stand-by plant must be equal to an output of from 50 to 100 per cent. in excess of the load demanded by normal service.

The dimensions of certain sections of plant, *i.e.*, that for operating switch-gear, are directly proportional to the number of sub-stations. If the number of sub-stations is doubled, the current for switch-gear operation must also be doubled, and the size of the requisite half pressure and double intensity of current is consequently more expensive than one which gives the same output, but with double pressure. Moreover, the efficiency of a converter increases with the pressure and this becomes of greater importance where the initial cost of current is high.



Brown Boveri 400 H.P. Locomotive of the Langritua Railway (2,600 volts).

While it is true that vehicle cost becomes less with falling pressure, there are very few cases where the saving will extinguish the extra cost of a multiplicity of sub-station plant. Experience has shown that an increase in line pressure from 1,500 to 3,000 volts will result in a saving of from 10 to 20 per cent. of the total cost. The advantages of high line pressure are notice-

Digitized by Google

able, not only on railways with comparatively small traffic, but on those systems where the traffic includes haulage of heavy goods loads, and particularly on those systems with very great variation of load and with peak values very much above the average of the day.

On the contrary, for railways with an approximately uniform load where there is intense traffic in light trains and where gradients are negligible, the advantages of high line pressure are generally small, because the comparatively small variation in the uniform loading of the system guarantees that the numerous sub-stations will run to the best advantage. For this reason a pressure of 1,500 volts has proved to be sufficient for a great number of railways operated by direct current, as for instance the French railways (Paris–Orleans, Midi and Paris–Lyons Mediterranean Railways).

Generally the economical pressure of the contact wire is lower, even where the traffic on the system is heavier than on the railways above referred to, and on numerous railways—local and inter-urban—it has proved economical not to exceed a pressure of 1,500 volts in the contact wire. There are, however, instances in which lower pressures are successfully used, as for instance on the local railways of Berlin. These lines deal with a succession of trains at intervals of three and a-half minutes, and are operated at a line pressure of 800 volts.

In contradistinction to those systems with small traffic or high peak loads the use of high pressures in the contact wire has been found extremely successful. This is especially the case on the Chicago, Milwaukee, and St. Paul Railway, and the railways of South Africa. These lines are characterised by steep gradients over which heavy goods trains are hauled, as well as by high peak loads occurring during short periods.

From a purely theoretical point of view, safety in the service of a railway increases with falling pressure. The practice of a decade, however, has shown that as long as the pressure is lower than 4,000–5,000 volts, these considerations have no actual value. Sub-stations and contact lines can be safely built for such pressures, whether direct or alternating current is used. Considerably higher pressures are used in stationary plant without any apprehension of risk, and it is difficult to see why there should be any distinction in the case of vehicles.

Combined Rail and Adhesion Locomotive, 1920 H.P.—Chilean Transandine Railway (3000 volts).

As the driving motors are connected in series, the pressure in a motor taking current from a 3,000-volt line does not exceed 1,500 volts. It is true that the difference in potential between the windings of the motor and its casing is equal to the total pressure in the contact wire, but the question of safety of the motors is merely a problem of insulation similar to that which has already been solved in the technics of alternating current. It is important to note that the problem is solely one of insulation and not of commutation, because the pressures in the motor remain within normal high-pressure limits.

In the locomotives or motor cars there are, of course, a number of smaller machines in addition to the driving motors, *i.e.*, motors for driving the compressors,

Digitized by Google

vacuum pumps, converters and fans. The construction of motors of 3,000 volts undoubtedly requires great care and experience, but there are no scruples as to their use to-day. On numerous railway systems, under varied conditions, excellent results have attended their adoption.

The question of high-pressure direct current for railway operation is therefore reduced practically to the question of switch-gear. Rupture of a high-pressure direct current circuit is essentially more difficult than is the case with equal pressure in an alternating current circuit. Switch-gear has, however, been designed and constructed for use on high voltage direct current circuits which is safe and effective, and which will deal with currents much heavier than those occurring in electric railway operation.

The experience gained with such switch-gear—not only on the test-bed, but under the most severe service is the Chicago, Milwaukee, and St. Paul Railway. On a difficult mountain section with a track length of 875 miles, this railway has been operated for over twelve years with direct current at 3,000 volts. Service upon the section referred to is extraordinarily difficult, even for the conditions obtaining in America, and certainly more difficult than can be found anywhere in Europe. The high-pressure direct current system was adopted for this railway after it had been proved on the Canadian Northern Railway (2,400 volts) and on the Butte, Anaconda and Pacific Railway (2,400 volts) on a smaller scale. So marked was the success obtained on these systems that high-pressure direct current was adopted for operating a number of other American railways.

It is not without interest to observe that the Chilean railways are also operated at 3,000 volts, as well as the Paulista Railway in Brazil, and the Mexican Railways.

385 H.P. Motor Coach and Trailer—Nyon St. Cergne Morez Railway with line pressure of 2,200 volts.

conditions, justifies the assurance that the construction of switch-gear for railways operated with direct current can be mastered with safety for pressures of 4,000–5,000 volts. There does not, therefore, seem any reason for regarding railways operated at pressures between 1,500 and 5,000 volts as less safe than those railways in service with pressures below 1,500 volts. Even the question of personal danger is no greater at these higher pressures than at 1,500 volts, seeing that this pressure is already sufficiently perilous as far as human life is concerned.

Apart from theoretical considerations, the numerous railways already constructed or in the course of construction, designed for operation by direct current at high pressure, are perhaps the best argument as to its suitability for the purpose.

Perhaps the best known and at the same time one of the largest electrically-operated systems in the world

One of the Brown Boveri locomotives similar to those of the Paulista Railway shown on page 180.

Electrification, at 3,000 volts, of the Pajares section of the Northern Railway of Spain can be directly traced to the example of the Chicago, Milwaukee and St. Paul Railway, and it is not too much to say that the results obtained on this railway have largely influenced the decision of many countries, especially France, in favour of high-pressure direct current for operating their electric railways. Railways in South Africa and Morocco, which have been electrified at 3,000 volts, have equally followed the American example.

Independently of the developments mentioned, the first railways in Europe to be operated by direct current at pressures above 2,000 volts came into service shortly before and during the first years of the war. There are the Chur Arosa Railway, sixteen miles in length, and the Nyon St. Cergne Morez system,

Digitized by Google

twenty-four miles in length. The electrical equipment of both these railways, which are operated at 2,200 volts, was supplied by Brown Boveri.

The railway between Turin and Lanzo Ceres, twenty-seven miles, is operated at 4,000 volts—the highest pressure yet used in practical service. The great number of railways electrified on similar principles in the years following the war, and the fact that the Turin-Lanzo system has rendered excellent service for upwards of eight years, are sufficient proof of the success of operation by high-pressure direct current.

In addition to the systems referred to, the following railways have been equipped for operation by direct current at high pressure :—

System	*Length*	*Voltage*
Peggau-Nebelach	6 miles	2,200
Pinerolo Perosa	11 ,,	2,200
Langritua	93 ,,	2,600
Bielleri	30 ,,	2,400
Rom-Ortia	16 ,,	2,600
Moleto Moricia	32 ,,	2,600
Bella Oropa	9 ,,	2,400
Projected electrifications include :—		
Dolmiston Railway	41 ,,	3,000
Ferrovis Vicentieu	32 ,,	3,000
Arezzo-Sialunga	25 ,,	3,000
Ferranza	37 ,,	2,600
Pescara-Perne	23 ,,	2,600

Of particular importance was the electrifying for 3,000 volts of the railway from Benvenuto to Foggia (63 miles) because this was the first occasion upon which the Italian State Railway authorities gave up the low-pressure system which had hitherto obtained as normal. It is possible that the data obtained from operation of this section will further limit the use of low-pressure current for Northern Italy and result in adoption of a pressure of 3,000 volts for the railways of Central and Southern Italy.

Another important and interesting electrification for 3,000 volts has been carried out on a thirty-mile section of the Terrovic Nord Milan Railway, over which trains are run at speeds of sixty miles per hour.

The extensive adaption of railways during the past few years for operation by direct current at high pressures has been due to a great extent to the development of the automatic sub-station with remote control, the efficiency of which is very high indeed and closely approximating to that of alternating current sub-stations equipped with transformers.

The railways referred to work under widely varying conditions. They include systems with exceptionally heavy traffic ; systems with such small successions of trains that they were at one time almost displaced by motor omnibus competition ; railways in mountainous districts which abound with heavy gradients and curves ; and those with negligible gradients over which trains are operated at very high speeds. Widely divergent as these conditions are, it has in every case been abundantly demonstrated that direct current at high pressure is likely to offer solution of many railway electrification problems in the future.

STEAM RAIL CARS.

The difficult problem which every railway has to meet is that of providing a profitable passenger service on branch lines. In the circumstances it is not surprising that the rail motor coach is being rapidly developed. Just before the war there were at least 200 steam rail cars in operation in Great Britain. About 108 of these were owned by the Great Western Railway and its subsidiary lines ; 25 by the London and South Western Railway ; and 17 by the Lancashire and Yorkshire Railway. Later the use of rail cars was discontinued, except by the Great Western and Southern Railways.

Since 1918 this type of coach has been rapidly developed, and steam cars, capable of seating about 60 people, are now provided with high pressure boilers, engines of six cylinders, coal storage for sixteen hours' working and water sufficient to run thirty miles. There are said to be 127 steam rail coaches on British railways.

ENGLISH ELECTRIC AUTOMATIC SUB-STATIONS.

Demonstration of Complete Electric Railway Sub-Station Equipment.

A demonstration of great interest was recently given at the Stafford works of the English Electric Co., Ltd., of a complete automatic electric railway sub-station equipment. The plant shown was one of the three sub-stations which the company are manufacturing for the Ise Electric Railway of Japan.

The capacity of each sub-station is 4,000 KW., and the D.C. voltage is 1,500 volts. Each equipment consists of four 1,000 KW. 750-volt rotary converters working in series pairs for 1,500 volts. The E.H.T. supply to the sub-station is 3-phase, 60 cycles, 11,000 volts.

The equipment arranged for the demonstration was as follows :—

One 11,000-volt, 3-phase, 60-cycle truck-type switchboard.
Two 2,100 K.V.A. O.I.S.C. indoor-type, step-down transformers, each with double-wound secondary windings for supplying two converters in series.
Four sets of L.T. A.C. starting and controlling relay equipments, including camshaft controllers.
Two common relay panels.
Four 1,000-KW. shunt-wound rotary converters, with direct-coupled exciters and running at a speed of 900 R.P.M.
One set of 1,500-volt D.C. switch-gear, including track-feeder breakers, and
One desk-type control board.

The general scheme of control begins with the incoming supply to the automatic and auxiliary equipments and is controlled by one feeder supply oil circuit-breaker which can be closed by the control switch on

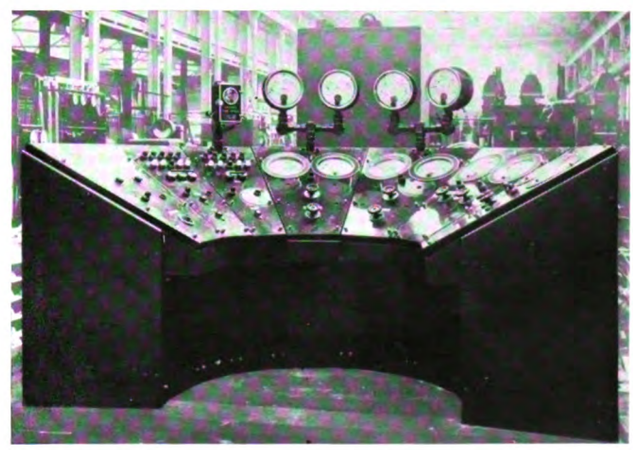


Fig. 1.—English Electric Desk Type Control Board.

the desk control board, as shown in Fig. 1, or by the manual hand-operating gear, if desired.

After making the supply available the first unit, consisting of two machines, can receive its starting impulse either from a time switch, or from a " start " push-button on the control desk. The second unit will be brought into operation by a prolonged overload on the first unit by means of an overload relay or by the operation of the machine thermostat.

While the limitations of the test bed supply did not permit the entire reproduction of service conditions, the demonstration was of exceptional interest. It served to show the remarkable ease and efficiency of the English Electric system of remote or entirely automatic control of a sub-station. Although there was not sufficient power available to load up the first

Digitized by Google

Fig. 2.—Four English Electric 1,000 KW. 750 Volt Rotary Converters.

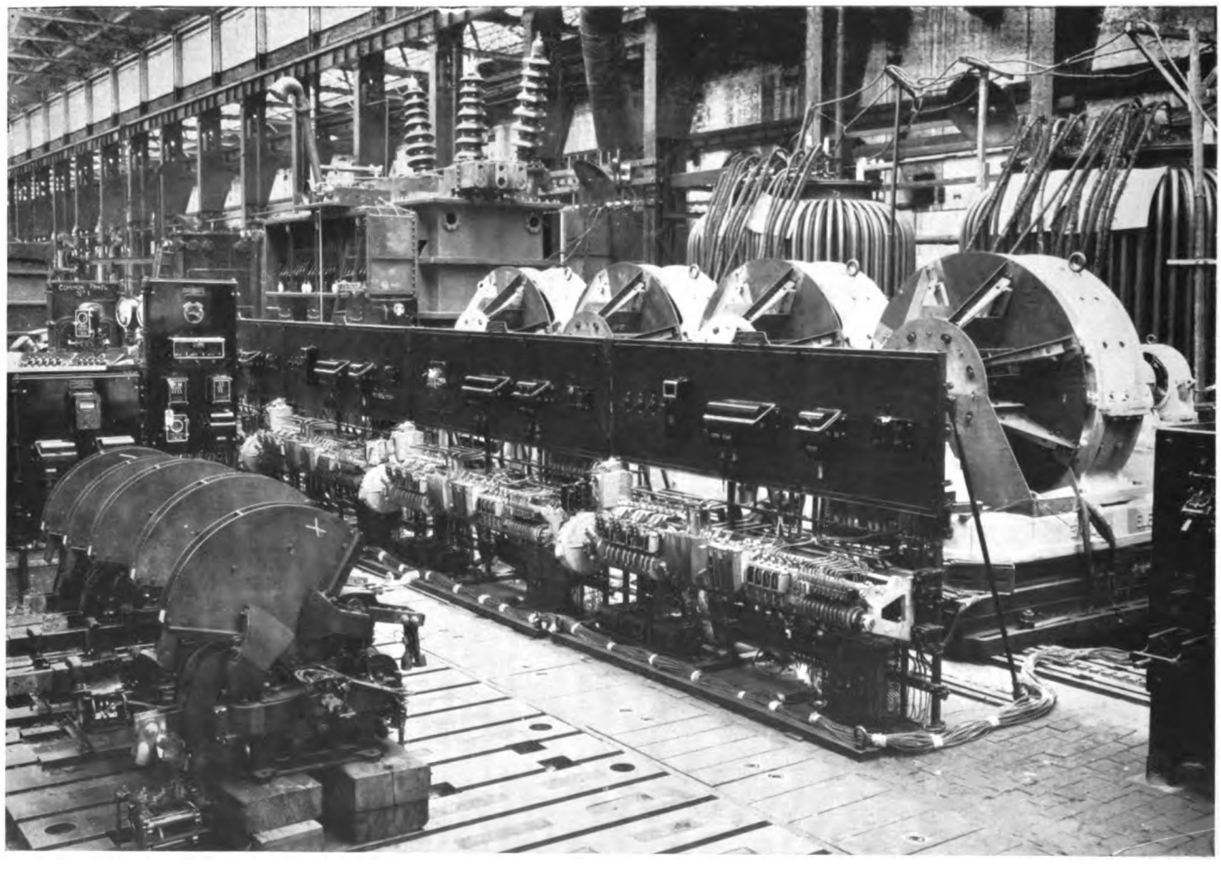


Fig. 3.—View of Open Type English Electric Camshaft Control Equipment.
The High-Speed Circuit Breakers are seen in the foreground.

Digitized by Google

unit to the point necessary to automatically bring in the second unit, by manually tripping the devices controlling both the overload and the thermostat each of these conditions was artificially reproduced and the second set brought into operation.

During the normal working of the sub-station the plant is shut down in the following sequence :—

If both units are running, the unit which came into operation last will shut down first through the operation of its underload relay and the underload relay timing device. The other unit will shut down through the operation of the time-switch or through the operation of the appropriate " stop " push-button. Should both units be running when the time-switch comes into operation, both units will shut down.

Whether the station is operating under time-switch or push-button control, the order of starting is determined by the position of a two-way triple pole starting sequence tumbler-switch on the control desk which must be set beforehand to give priority to either unit.

The sets shut down in the reverse order to that in which they start.

on tap-started rotary converters, and the disadvantages usually laid against this method of start have now been overcome, and therefore the saving in first cost and also in the space occupied due to the omission of the starting motor can be fully realised.

The use of roller bearings obviates the need of a brush-lifting device, and, therefore, the starting operations are just as simple and straightforward as for a pony motor-started machine. With roller bearings also, the starting current taken from the H.T. mains is reduced to a figure which compares favourably with that taken by a motor-started converter and, in order to reduce the current rush when changing from the tap volts to the full voltage of the transformer, the English Electric Co. has developed a three-stage start in which an intermediate step connects the full voltage through chokers to the slip-rings of the converter, these chokers being designed to limit the current to a value which does not exceed the original starting current.

It is interesting to note that, although the English Electric Co. has supplied well over one hundred rotary converters to Japan during recent years, not one of

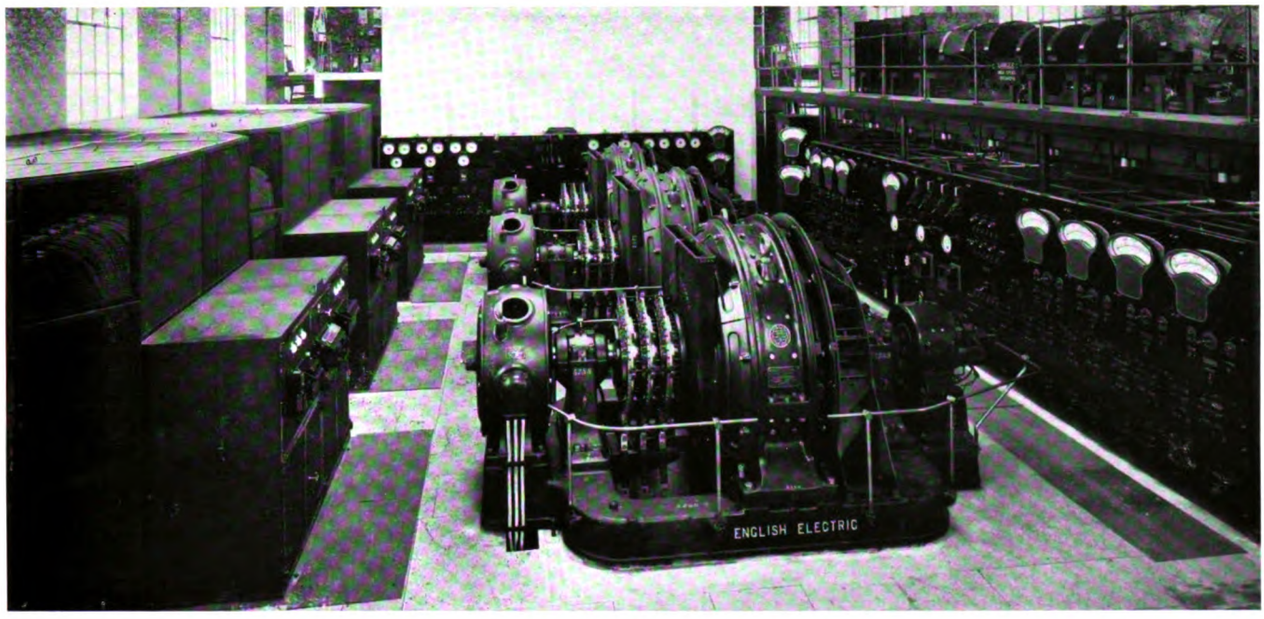


Fig. 4.—London, Midland and Scottish Railway Sub-Station at Plaistow, with three 1,200 KW. English Electric Rotary Converters.

A complete system of protection is incorporated, covering all possible faults. These are : (1) Incomplete start ; (2) A.C. leakage ; (3) overspeed ; (4) hot bearings ; (5) field failure ; (6) wrong polarity and failure to synchronise ; (7) A.C. overload ; (8) single-phase starting ; (9) D.C. leakage—all of which lock out the units, necessitating the resetting of the devices by hand ; (10) A.C. under-voltage or failure—shuts down the station, which can be restarted on the removal of abnormal conditions ; (11) D.C. reverse current—shuts down unit, can start again when conditions are in order ; (12) over-heated machines—if one machine is running, causes second unit to start—further heating opens D.C. " machine " H.S.B. and contactor, but allows them to re-close when the unit has cooled down —the unit continues to run ; (13) D.C. overload—locks out D.C. breakers, after three attempts at re-closing.

The rotary converters (*see* Fig. 2) are started by means of low-voltage tappings on the transformers and are provided with roller bearings. The English Electric Co. has specialised in the use of roller bearings

these has been started by means of a pony motor, and the several repeat orders indicate that the English Electric Co.'s system of tap-starting with roller bearings is one deserving the serious consideration of engineers dealing with this class of plant.

The use of roller bearings to the majority of people infers grease lubrication, but the English Electric Co. has decided, as a result of its experience, that oil lubrication is preferable, and all their rotary converters now fitted with roller bearings are provided with a patented system of oil lubrication which is giving complete satisfaction.

For cases, however, where pony motor-start is definitely preferred, the English Electric Co. has a patented pony motor system of start which incorporates a rotor, consisting of a solid steel cylinder, machined all over and milled axially with a series of deep, narrow slots. These slots do not extend the whole length of the rotor, but leave the ends solid so as to form what are virtually short-circuiting rings for the currents induced in the solid teeth.

Digitized by Google

By constraining the induced rotor currents to definite paths and introducing additional current losses due to magnetic leakage across the narrow slots, this improved type of rotor has a much higher power-factor and a considerably reduced slip when running, compared with the usual unslotted solid rotor.

By the adoption of this new type of rotor it is possible to use a pony motor of the same synchronous speed as the rotary converter, and at the same time to retain a construction which is devoid of windings of any kind, and is, therefore, indestructible.

The normal slip of the rotor is already very low, due to the construction mentioned above, but it is reduced still further by the alteration of the stator connections after the motor has run up to sub-synchronous speed on the full stator winding. Moreover, as the motor has the same number of poles as the converter, it cannot run above the synchronous speed of the latter. Synchronising can, therefore, be carried out with great ease and certainty.

The main feature of the English Electric Co.'s automatic control gear is the camshaft controller (shown in Fig. 3), by means of which the main starting operations are carried out. This camshaft controller is a modified form of that used with great success in the English Electric Co.'s electric locomotive equipments.

By means of this controller the various starting operations are carried out in a definite mechanical sequence, and its use obviates the need of a number of large contactors with their resulting intricate interlocking circuits.

Normally the camshaft controller is housed in a sheet steel cubicle on the front of which are mounted the various protective and other relays. The open type of camshaft controller used in this instance has, however, been built to the specification of Japanese engineers.

The English Electric Company has supplied large numbers of automatic sub-station equipments, both at home and abroad. A particularly interesting installation is that shown in Fig. 4, illustrating the Plaistow sub-station of the London, Midland and Scottish Railway. This station contains three 1,200-KW. English Electric heavy duty traction rotary converters, automatic switching equipments with supervisory control, transformers, and high-tension and low-tension switch-gear. The enclosed type of camshaft controller is clearly shown in this view and represents the English Electric standard type.

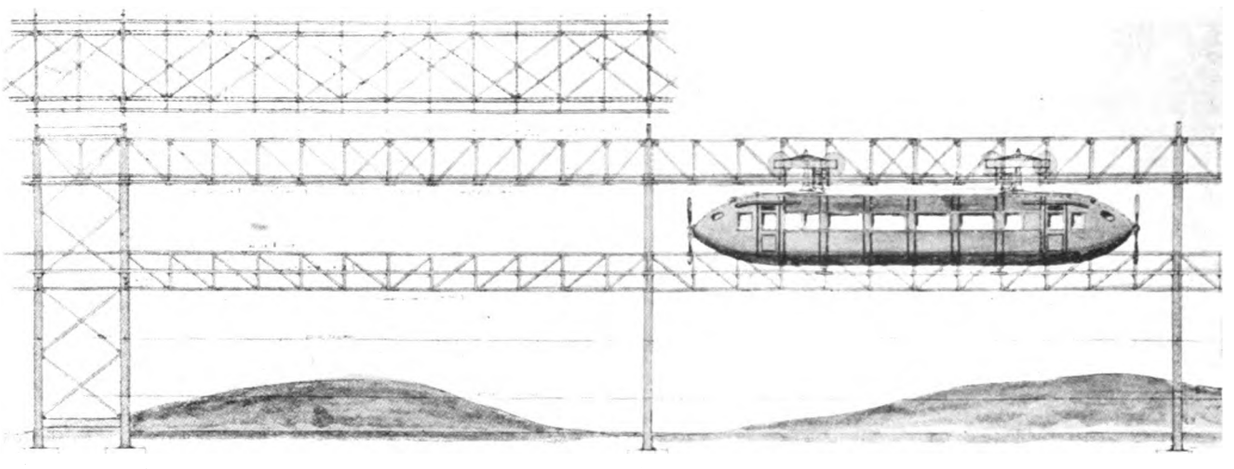
DEVELOPMENTS IN THE BENNIE RAILPLANE SYSTEM.

Full-Size Test Track Erected at Milnegavie.

A further stage in the development of the Bennie Railplane system is marked by the construction of 426 feet of full-size track at Milnegavie, near Glasgow, by arrangement with the London & North Eastern Railway Company.

It is Mr. Bennie's opinion that one of the solutions of the traffic problem lies in separating fast from slow-moving traffic, and that by removing the passenger traffic the railways would be left free for uninterrupted high-speed goods traffic.

In the Bennie system, which is the invention of Mr. George Bennie, and a description of which appeared in The Tramway and Railway World of September 16, 1926, it is proposed to make use of cars, not unlike airships in shape, driven by air screws and suspended from bogies carried on a steel superstructure. The cars, of light rigid construction, are designed to accommodate fifty passengers, and it is anticipated that with the tractor and pusher propellors with which they will be provided—driven electrically or by internal combustion engines—speeds of 120 miles per hour will be attained.



Side Elevation of Track Structure and Car of the Bennie Railplane System.

One of the principal features of the system is that the cars are so designed that at high speeds there will be a tendency for them to rise slightly in the air, and so relieve to a great extent the friction due to the weight of the car on the suspension rail. The adoption of this principle is possible only because the cars are designed to be driven solely by air screws, and are not dependent upon adhesion.

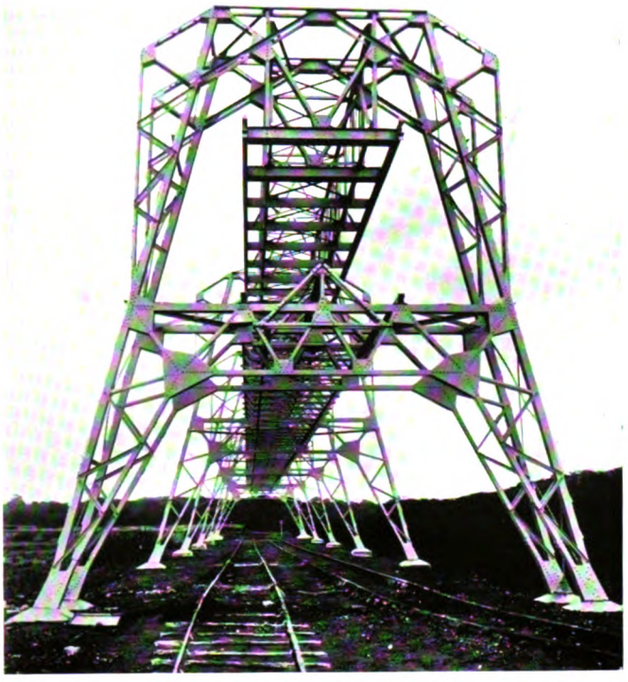
The braking system, which is hand and electrically controlled, is arranged to grip the rail top and bottom, so that the wheels themselves run free when decelerating, and so avoid the harmful effect of flats on the wheel surfaces and unequal wear arising from friction caused by surface braking.

The bogie upon which the car is carried consists of a central suspension member which is attached by laminated springs to a two-wheel bogie carriage. Eight shock absorbers, which are designed to assist in the smooth running of the car, are employed. The wheels themselves are carried on roller bearings and embody the Bennie patented silent wheel construction,

Digitized by Google

which comprises an annular ring of rubber interposed between the hub casting and the tyre.

Automatic electric signalling, which is combined with magnetic brake control, is provided on the full-scale track which has been erected, and a full-size car has been constructed.

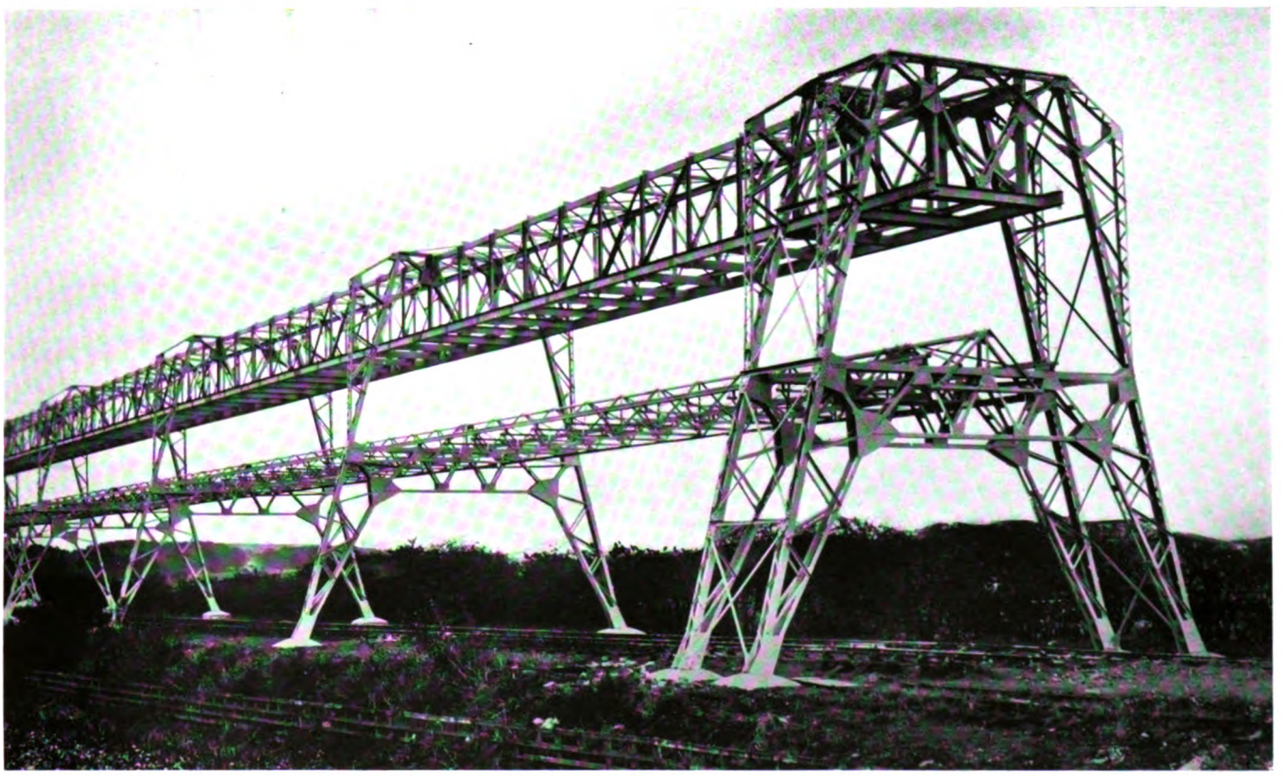


Test Track of the Bennie Railplane System.

It is hoped that this test section will provide the necessary technical data to demonstrate the practicability and the advantages in speed and economy which the railplane system is claimed to offer. According to estimates which Mr. Bennie has prepared, a double-track railplane system can be constructed at a cost of between £17,000 and £19,000 per mile, according to traffic considerations and local conditions. These figures compare very favourably with the actual cost of ordinary steam or electric double-track construction, either for main line or local services, while they are much below the cost of underground or elevated railways of the usual type.

The experimental section of track, two illustrations of which accompany these notes, has been made by the Tees-side Bridge and Engineering Works, Ltd., and the full-size railplane car which is to be used in the tests has been constructed by Wm. Beardmore & Co., Ltd. The air screws on the experimental car are to be driven by electric motors which have been specially designed by Laurence Scott and Electromotors, Ltd. Their output is 60 B.H.P. at 1,200 R.P.M. on a one-hour rating. Over half a minute they are designed to give a total output of 240 B.H.P. at 1,800 R.P.M. By reversing the air screws the car can, it is asserted, be brought to a standstill from full speed without the slightest jar.

It is understood that Mr. Bennie has obtained the approval of the Blackpool Corporation for the construction of a railplane system and a road bridge with which to connect the towns of Blackpool and Southport over the river Ribble by way of Guides House and Hesketh Bank. Other developments are planned in Ireland, while negotiations are in progress concerning several schemes abroad. A scheme is also being submitted to Glasgow Corporation to link up Anniesland Cross and Balloch Park by the railplane system.



Part of the Full-Size Test Track of the Bennie Railplane System at Milnegavie.

TRAMWAY RECONSTRUCTION LOAN.—Manchester Transport Committee has obtained sanction for a loan of £19,000 for the reconstruction of tramways in Heywood.

Digitized by Google

UNDERGROUND ELECTRIC RAILWAY POWER HOUSE.

Replacement of Original Plant.

The remarkable increase in the demands made upon the Lots Road power station of the Underground Electric Railway Company during the past few years has made it necessary for practically the whole of the original plant to be replaced by larger and more efficient units in order to keep pace with the constant demand for a greater output.

Lots Road power house, has been in use for twenty-five years, and during that period tremendous developments have taken place in underground traffic. The power house was completed in 1905 to provide electric current for the operation of the Metropolitan District Railway and the three tubes that now form the London Electric Railway; when inaugurated it represented the most modern and efficient installation of its kind in the world, the 6,000-kw. Westinghouse turbo-alternators being the largest sets that had yet been built.

The power house has now to supply not only the Metropolitan District and the London Electric Railways, but also the Central London and City and South London Railways, and the London United Tramways.

The development of Underground traffic during the past twenty-two years is indicated by the increase in car mileage operated. In 1908 the total car mileage on railways supplied by Lots Road power house was 32,500,000; the estimated figure for 1930 is 96,250,000, an increase of about 196 per cent.

As new demands were made upon the power house through the opening of extensions of the lines and increases in the speed and frequency of train services—the capacity was augmented by the addition of new machinery.

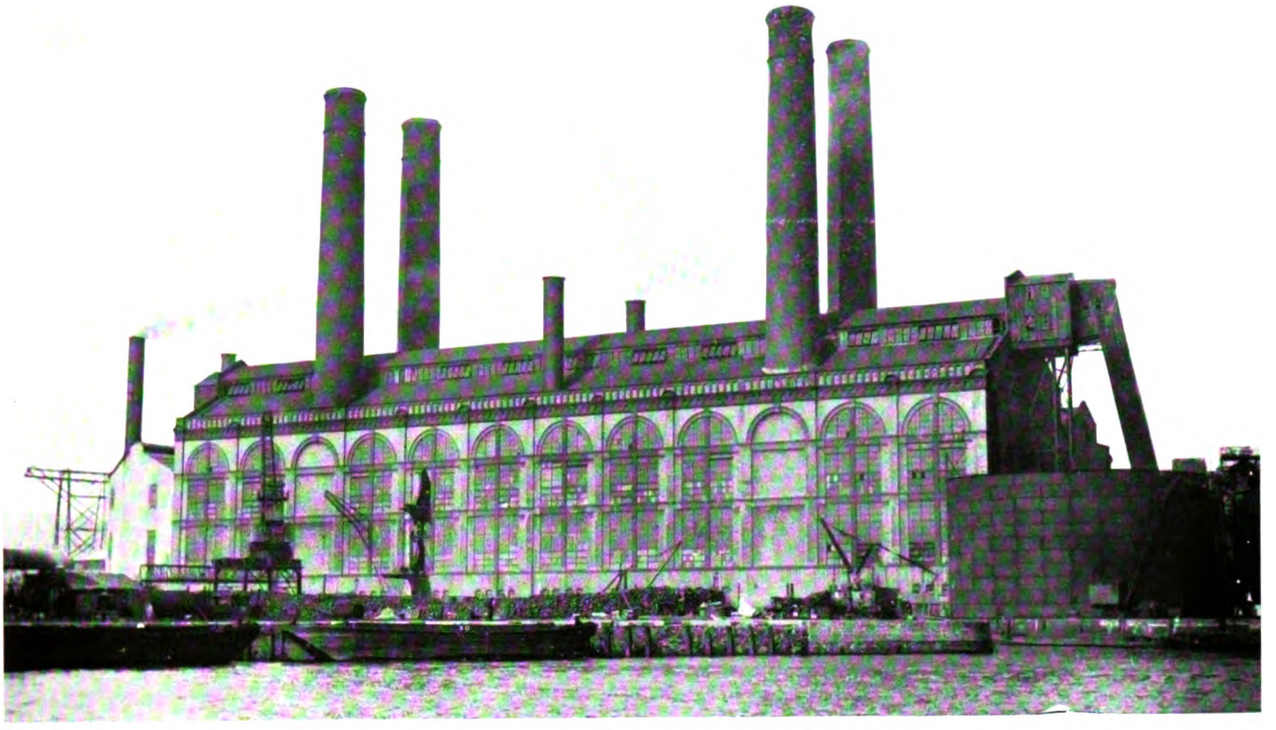
In 1925 it was recognised that further additional demands on the power house could not be met adequately except by the replacement of practically the whole of the original plant, and a comprehensive scheme of gradual replacement was entered upon at a cost of approximately £1,000,000.

The generating plant on the completion of the present programme will comprise nine 15,000-kw. turbo-alternators, with a station load of 105,000 kw., two sets being stand-bys. A further installation of two 15,000-kw. sets is contemplated. Thus far the work actually effected is attested by the output from the power house having been increased from 7,000 kw. in 1925 to 90,000 kw. in March, 1930. By the autumn of the present year the output will be 95,000 kw. This task of reconstruction and improvement—one that must of necessity proceed slowly and with great care, as the Underground services have to be maintained whilst it is in progress—has now been carried on for five years and will be completed next year. Increase in capacity has been accompanied by a commensurate increase in efficiency, as will be gathered from the following details of the work and the salient features of the improvements.

The original equipment comprised eight Westinghouse turbo-alternators of 6,000-kw. capacity each Three additional Parsons sets, each of 15,000 kw.

New Control Room at Chelsea Power Station—London Electric Railway.

Digitized by Google



Chelsea Power Station—London Underground Electric Railway.

New Turbine and Condenser being installed at Chelsea Power Station.

Digitized by Google

were installed, the first in 1915, another in 1921, and the third in 1925. Since the latter date, three of the old 6,000-KW. sets have been removed and replaced by three 15,000-KW. machines. A further 15,000-KW. set is now in course of erection, displacing a fourth 6,000-KW. set. The two latest large sets are working at a higher steam pressure (275 lbs. per square inch) and temperature (650° F.). The other four large sets are running under the old steam conditions (185 lbs., 500° F.). With the exception of the set erected in 1915, all these machines are capable of conversion to the higher steam pressure, with a minimum of alteration.

The whole of the high-tension switchgear is being replaced, the new switches having a rupturing capacity of 750,000 K.V.A. Over half of this work has been completed to date, including the provision of more ample busbars, together with a ring main bus. Generator reactors are also being installed.

An entirely new high-tension control board has been erected in a new control room at the eastern end of the engine room building, and the existing control board on the gallery will be dismantled. The D.C.

Ash Handling Plant, Showing one of the Graduated Screens.

auxiliary board has also been transferred to the new control room and is in service in that position. The whole of the electrical system of the power house and feeders will shortly be controlled from the new control room. An illuminated diagram will be provided giving automatic indication as to which feeders supplying sub-stations are alive. A complete new telephone equipment will shortly be installed in the new control room, giving direct communication to all substantions and traffic controllers.

The old auxiliary equipment operated at 220 volts A.C., but this is being changed over to 440 volts A.C., and the auxiliaries on the two latest turbo-alternators are working at the higher voltage. The new 440-volt busbars are housed in the basement, and the main switches are all remote controlled. The new " House " transformers are being erected on the engine room floor, while the 440-volt " Unit " transformers and the generator reactors are housed on a new floor between the basement and the engine room floor.

The original boiler equipment consisted of 64 Babcock & Wilcox land-type boilers, each of a capacity of 16,000 lb. of steam per hour at a pressure of 200 lb. and a temperature of 500 degrees Fahr. Eight new boilers, of the C.T.M. type made by the same firm, have been installed, four in 1922 and four in 1925. All these have a capacity of 39,000 lb. per hour, at 290 lb. pressure and 700 degrees Fahr.

To facilitate the general reconstruction without reducing the output from the station, four new C.T.M. boilers have been erected outside the western end of the main boiler-house. These have a capacity of 50,000 lb. per hour each, at the higher pressure and temperature, and have been in service since 1927.

To date, sixteen of the old boilers have been removed and replaced by eight new ones of 50,000 lb. capacity, working under the higher steam conditions, and supplying the two latest large turbines. The remaining boilers are at present working on the low-pressure steam system. Eight further large boilers (of 50,000 lb. capacity) are at present in course of erection, replacing the second batch of sixteen old boilers which have been removed. All the new boilers are equipped with balanced draught equipment, the 50,000-lb. boilers having compartment-type stokers. Each boiler has a superposed steel economiser.

The steelwork supporting the coal bunkers is at present being overhauled and renewed where necessary. At the same time, two partitions are being built in the large bunker between the four original brick stacks. This is intended to facilitate the operation of the station.

The old system of handling ashes by means of skips has been replaced by a water-sluicing system, discharging into a sump built in the yard at the west end of the power house. From this sump, ashes are grabbed by a Telpher crane, and can be either passed through screens for sizing, or discharged into barges in the Chelsea Creek. All the new boilers discharge direct into the new sluice, while ashes from the old boilers are at present being tipped into the sluice.

Two electrical feed pumps (at 440 volts) and one steam pump are in service on the higher pressure system. The duty of these pumps is 40,000 gallons per hour.

A third new electrical feed pump (at 28,000 gallons per hour) is in service on the low pressure system.

The two old intake pipes, each 5 ft. 6 in. diameter, in the river bed have been replaced by one new 9 ft. diameter tunnel 30 ft. below the river bed. The screens in connection with this intake system have been replaced by larger ones, the pit having been made 6 ft. deeper.

A new outlet system, discharging into Chelsea Creek, has necessitated the construction of a number of weirs in the bed of the Creek. The intake and discharge orifices of the 7 ft. 9 in. diameter tunnel have been entirely rebuilt. This tunnel serves two large machines at the west end of the engine room.

To facilitate the handling of material during reconstruction of the boiler house, a luffing crane has been erected on the land alongside Chelsea Creek opposite the boiler house. All the plant and materials for the erection of the new boilers are assembled on this land and lifted across the creek as required. This land will eventually be occupied by additional coal-handling plant.

A new artesian well has been sunk in the yard at the east end of the power house, and is fitted with an electrically-driven centrifugal pump.

Plant has been installed for the purpose of injecting chlorine into the circulating water as it comes from

Digitized by Google

the river. This reduces considerably the slime in the condensers caused by organic growth in the water. Each of the large turbo-alternators is also fitted with a "Deptford" type rotary strainer, further to prevent foreign matter entering the condensers. A complete new equipment of lightning conductors has been installed on the four original brick chimney stacks. Arrangements are being made to earth the neutral point of one generator only through a suitable resistance by means of a special automatic switching arrangement

NOTTINGHAM'S NEW SIX-WHEEL TROLLEY OMNIBUS.

FEATURES OF THE 80-H.P. RANSOMES VEHICLE.

Both the Nottingham Corporation Tramway Department and the local travelling public should be well pleased with the latest type of six-wheel trolley omnibus which has been supplied to the department by Ransomes, Sims and Jefferies, Ltd., of Ipswich, who received an order for six. The satisfaction of all concerned should not be surprising; for, apart from their operating merits, the vehicles may be described as luxurious from a passenger's point of view.

Chassis and body have both been constructed in the Ipswich works. The six-wheel chassis is mounted on 36 in. by 8 in. pneumatic tyres, and it incorporates the Thornycroft patent bogie. This has many advantages, the most striking being the double-pivoted springs on each side, thus ensuring the balancing of the torque reactions in the bogie itself, and avoiding the necessity of torque rods. By this means it is possible to secure a uniform and equal distribution of load on the bogie wheels under all conditions of acceleration and retardation. Further, the patented method of articulating the spring ends to the axles by trunnion brackets prevents the lateral displacement of the spring leaves one to the other.

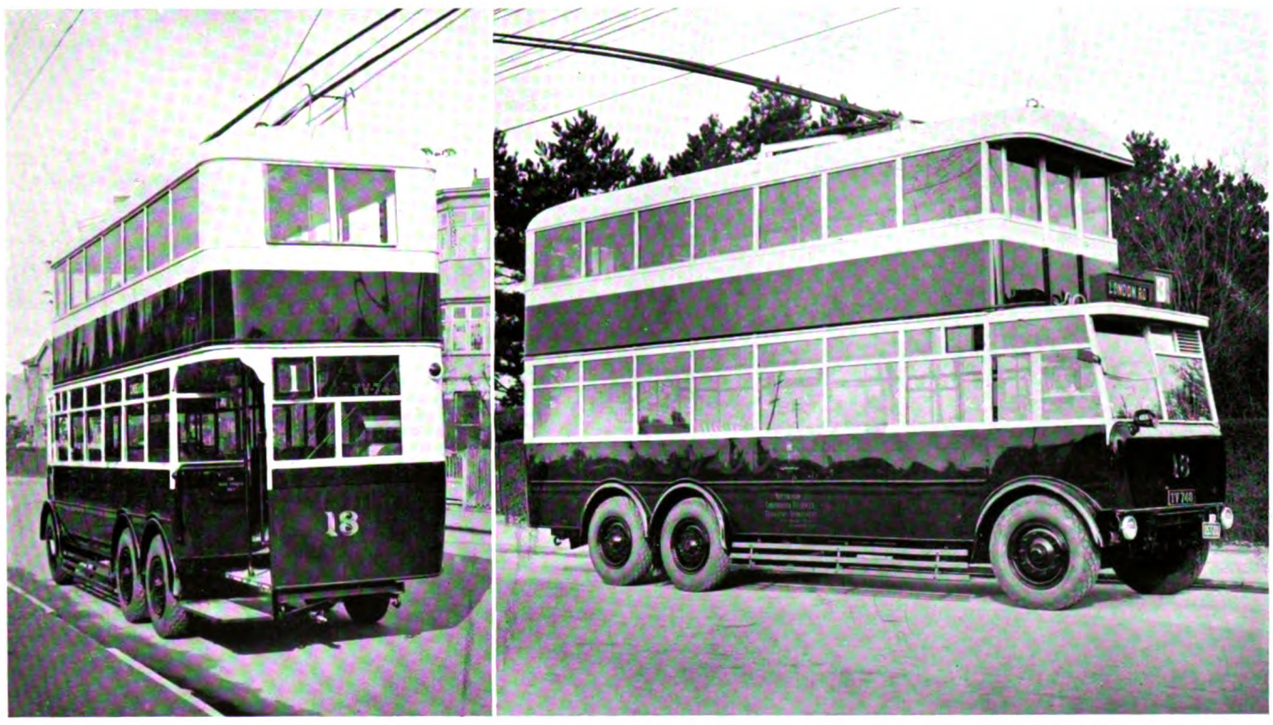
Another feature is a third differential in the rear axles as a means of equalising the drive between all four rear wheels, each being able to roll freely on the road at a speed which may differ from any of the others due to varying diameters of tyre or other causes. This tends materially to increase the life of the tyres and brings about a reduction in power consumption under service conditions.

Marles steering is fitted, and the braking has had careful consideration and testing. In addition to the Westinghouse pneumatic equipment on the front and rear wheels a hand or parking brake is operative on the rear wheels. Rheostatic braking is embodied in the British Thomson-Houston Co.'s contactor controller arranged for series parallel control.

The motor is manufactured by Ransomes, Sims and Jefferies. It is of the twin type, having two armatures running in a common casing, and gives 80 H.P. on the British standard specification rating. It has considerable overload capacity.

Sixty seated passengers are accommodated, 28 in the lower and 32 in the upper saloon. All the seats are of the semi-bucket type, and are upholstered in green leather. The arrangement of the seating affords ample knee-room. Both saloons are effectively ventilated.

The internal finish is most pleasing, the mouldings and panel work having a rich mahogany shade, while the roofs are white enamelled, which adds to the efficient lighting. Full protection from the weather is given to the wide platform and the staircase. Ransomes' patent sub-base carries the trolley bases independently of the roof, which is consequently relieved of all stresses during the operation of the booms, especially when the trolley wheels leave the wires,



Rear End and Side View of one of Nottingham's New Trolley Omnibuses.

Digitized by Google

CHARING CROSS BRIDGE SCHEME.

REMARKABLE MODELS TO ILLUSTRATE THE LONDON COUNTY COUNCIL'S PROPOSAL.

During the past month the controversy that has attended the scheme of the London County Council for erecting a road bridge in place of the railway bridge at Charing Cross has been transferred to a committee room of the House of Commons. Under the presidency of Sir Henry Cautley, the Private Bill Committee has been considering the County Council's Bill, which includes proposals that would facilitate the removal of the Southern Railway terminus from Charing Cross to the site of the Lion Brewery, adjoining the Shot Tower and Waterloo Station on the other side of the Thames.

Mr. John B. Thorp's Model of New Charing Cross Bridge and its Environs—View from Charing Cross.

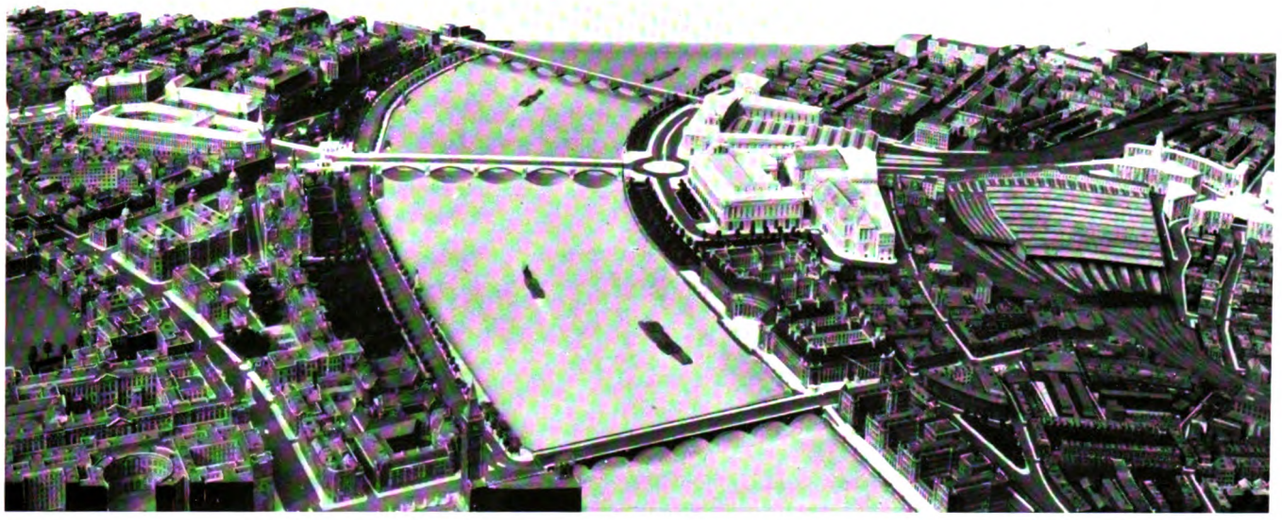
The scheme was planned by Sir George Humphreys, engineer to the County Council, in collaboration with Mr. F. Palmer, consulting engineer, who has been engaged by the Council to superintend the repair of Waterloo Bridge. The Minister of Transport supported the measure, acting on the advice of the London and Home Counties Advisory Committee on Traffic. Consideration of the Bill has been facilitated by the preparation of a large model of the proposed road bridge and the alterations to be entailed by its construction.

This model of the entire scheme, which has been shown in Westminster Hall, made by Mr. John B. Thorp, of 98, Gray's Inn Road, London, W.C., is one of the most remarkable that has ever been constructed; but it is, of course, not intended to represent an accepted scheme of architecture. It is on a scale of 44 in. to the mile, and its preparation entailed 5,000 hours' work and the taking of over 500 photographs. Use was also made of a number of photographs taken from the air. The model is clearly shown in the accompanying photographs, the view taken, as it were, from the air conveying a more realistic impression of the project than is afforded by the views in perspective.

The estimated cost of the bridge and its approaches is £14,000,000. Much criticism has been aroused by the fact that on the Surrey side the bridge was to be provided with two "tortuous" approaches, one from York Road (the northern approach to Waterloo Station) and one from the new circus which was to occupy the site of the recently reconstructed Old Vic Theatre. Traffic from the new station would issue on to the high embanked roadway which was to lead from Waterloo Road beneath it to the new bridge. The greatest outcry of all related to the lengthy "tunnels" into which those roads would be converted.

A different complexion was given to this matter by Sir Henry Maybury in the evidence which he tendered to the Private Bill Committee as consulting engineer to the Ministry and as chairman of the Advisory Committee on London Traffic. "Covered" roads, as Sir Henry termed them affect five streets, the total measurement being 1,160 ft., as against 2,119 ft. in the plan recommended by the Royal Commission. Sir Edwin Lutyens, the Council's adviser on the possible lay-out of the scheme, submitted two pictures of brilliantly lighted shops that the railway company might construct in the covered roads. Something was done to weaken the objection that the new bridge would not lessen Strand congestion by the evidence of Mr. Frank Pick. The managing director of the

Digitized by Google

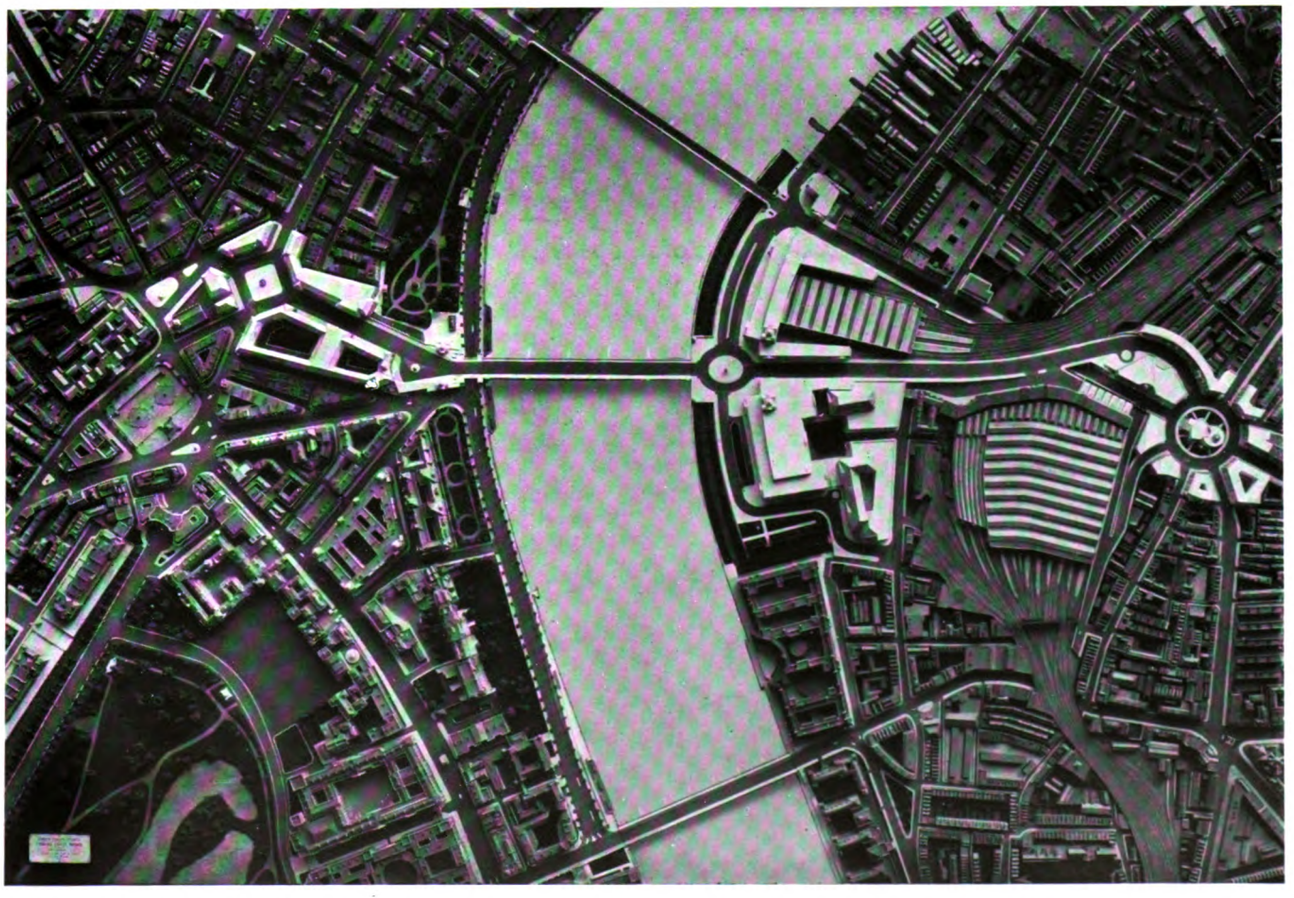


Perspective View of the Model of Charing Cross Bridge.

Underground Group, testified on April 4 that the Strand would be relieved of 1,002 omnibuses daily and Whitehall of 744. An improvement would be the provision of an omnibus terminal on the new station fore-court. The Bill included powers to build tramways on the bridge and in the new thoroughfare. Such an extension would be greatly appreciated by many thousands of passengers who would have to cross the river.

A critical position developed at the Committee's sitting on April 9. At the request of the Committee Mr. Palmer submitted a plan for a new station south of Waterloo, but Sir Herbert Walker said the Southern Railway could not accept it.

Sir Henry Cautley announced on April 10 that the Committee could not approve the placing of the station at the southern bridge head, causing one street to go over the other, resulting in tunnels and blank walls. They did not want to tie up this land from development. The Strand side of the scheme would be approved if the authorities agreed on the widening of St. Martin's Lane.



View of the Proposed Bridge and the District from Westminster Bridge to Waterloo Bridge as seen from above the Model made by Mr. John B. Thorp.

Digitized by Google

THE
Tramway and Railway World
FOUNDED IN 1892.
Offices:
AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2
Telephone: TEMPLE BAR 2948
Telegrams: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD *can be obtained at the following rates*

FOR THE UNITED KINGDOM—Twenty-five Shillings per annum.
FOR ALL PLACES ABROAD—Twenty-five Shillings per annum. Postage to Canada 6s.; to other places abroad, 9s. 6d.
Single Copies—One Shilling (Postage, 2 pence—abroad, 5 pence).
All back numbers—Two Shillings.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS.

The Editor will consider contributions offered for publication in THE TRAMWAY AND RAILWAY WORLD (including the Omnibus and Coach Section) by those conversant with the subjects that come within the scope of this journal. All information of a practical character relating particularly to the engineering and operating branches of transportation will receive prompt attention. Original illustrations will also be welcome.

LONDON, APRIL 17, 1930.

A Great Railway Power Station.

The great developments which are taking place in the huge generating station at Lots Road, Chelsea, which supplies power to the London underground railways, are indicated elsewhere in this issue. As one looks back it is hard to realize that twenty-five years have elapsed since this station was built. In those days the use of steam turbines instead of reciprocating engines for large traction generating stations was something of a novelty, and great interest was aroused by the installation of turbo-generators totalling 48,000 KW. in eight units of 6,000 KW. each. A full and detailed description of the station with many illustrations and drawings, comprising over sixty pages, was accordingly published in our issue of February 5, 1905. As was then anticipated, the results achieved at Lots Road have entirely justified the designs of the engineers of the railway companies concerned. The power station at Greenwich for the London County Council tramways was built at about the same time. There, a conservative policy prevailed and the station was equipped with reciprocating engines. These, after a few years, were removed and replaced by turbines. A similar change has taken place in various tramway stations. The small space occupied, the great power obtainable, and the high efficiency have proved dominant factors. When Lots Road was constructed it was designed to meet the needs of the Metropolitan District Railway and the three tube lines which are now collectively called the London Electric Railways. But through consolidation of interests as time went on, the separate power stations of the City and South London Railway, the Central London Railway, and the London United Tramways were abolished, and all these undertakings were supplied with power from Lots Road. Along with this came higher speeds on the railways and longer, heavier, and more numerous trains. So, a number of years ago, began a change in the equipment of the power station which is now approaching completion. In the main it consists of substituting 15,000 KW. turbo-alternators for those of 6,000 KW., the provision of boilers of greater capacity and of higher steam pressure to suit the new turbines, and the installation of improved high-tension switch-gear. Before long the station will have a total capacity of about 130,000 KW. One of the features with which every visitor is impressed is that a 15,000 KW. set actually takes up less floor space than one of the 6,000 KW. sets. The improvements which time has brought about include higher steam pressures and faster rotation. Another valuable feature is that noise has been much reduced. The method of disposal of ash has also been completely changed. The ash is now carried out in a water culvert and after passing through special plant the residue finds a ready sale. Another outlet for the power from Lots Road is coming into view. A Committee of the House of Commons has just passed the Bill promoted by the underground railway companies to enable them to construct an extension of the Great Northern, Piccadilly and Brompton Railway from Finsbury Park northwards for some seven miles. The terrible congestion of traffic at Finsbury Park, where passengers have to change from the railway to tramcars and omnibuses, and *vice versa*, will be alleviated. There will be a heavy service, at least during the rush hours, on the extension railway and Lots Road should be able to take care of it. The Bill mentioned above also provides for an extension of the same railway in the Hammersmith district. It may be added that the Finsbury Park extension would have been con-

Digitized by Google

structed long ago but for the difficulty of raising the large capital required. The Government have now agreed to guarantee part of the interest for a period of years, thus enabling the company to proceed with this much-needed improvement.

The Advance of the Trolley Omnibus.

The financial year of many undertakings ends with March, and it is sometimes interesting to enquire as to the general tendencies of the times. In the sphere of urban district transport at present, British practice is receiving the serious consideration of the Continent and America and many of the British Colonies. The first thing which comes to mind is the increasing popularity of the trolley vehicle. Instead of being considered as a temporary substitute for the tramcar the trolley vehicle appears to be coming to the front as the aristocrat of urban road transport vehicles —powerful, silent and inoffensive. As various undertakings adopt this system of transport in this country and on the Continent, the inherent advantages of the trolley vehicle emerge. Its silence and absence of exhaust fumes, in addition to its wonderful acceleration, give it advantages over the tramcar for dealing with urban traffic, and its lateral mobility helps to speed up road traffic generally and to reduce traffic congestion. Transport managers as a body have yet to discover the trolley omnibus in its latest form. An opportunity for making its acquaintance will be available for members of the Tramways, Light Railways and Transport Association at this year's Congress. We believe that as a result they will endorse the practical opinion expressed by Mr. R. H. Wilkinson, in his paper at the Institute of Transport, that it has become the most serious rival of the tramcar for all town traffic. In Germany and other countries on the Continent, consideration is also being given to a dual-powered vehicle which can be driven as an ordinary petrol omnibus, where it is undesirable for some local reason to erect the overhead wires for the whole length of the route. The second Continental tendency we notice is the leaning towards the adoption of double-deck vehicles instead of the practice of using single-deck vehicles and trailers. It is possible that the growth of road traffic has been instrumental in making it necessary to revise the position regarding trailers, and that the double-decker will inevitably gain new adherents on the continent of Europe. The third tendency is the adoption of stage fares instead of the uniform flat fare so popular in America before the war. The English system of discriminating between the long and short distance rider is the system that is now commending itself to many transport undertakings outside these Islands.

A Channel Tunnel.

Despite the number of years that the proposal for a Channel tunnel has been before the people of this country, it cannot be said that it has ever succeeded in arousing popular enthusiasm. At the present time nothing could justify it but unmistakable proof that it would add to our prosperity by increasing our foreign trade and relieving unemployment. The recently published report of the findings of the Channel Tunnel Committee does not offer proof, or even conviction, that the construction of the tunnel would produce these much desired results. A study of the evidence submitted to the Committee reveals, for the first time, a considerable amount of positive fact and argument against the project and, in arriving at the somewhat hesitating conclusion that the tunnel would be of economic advantage, the Committee may be said to have damned the scheme by faint praise. The fact that the Committee are in agreement that the cost of the work would have to be borne by private enterprise, without financial assistance from the Government, speaks for itself. While no State assistance is needed for a project which is financially sound, it must equally be refused to one which is not. Lord Ebbisham, in his minute of dissent, sums up the whole case against the tunnel project in saying that the advantages are uncertain and, at the best,slight, while the detriment to such industries as shipping and agriculture is serious and certain. The evidence before the Committee has failed to show any commercial or industrial enthusiasm for the scheme. Chambers of Commerce could only be induced to support it "on general grounds." No trade has expressed any active desire for it; some are openly hostile to it. No one is prepared to say in what manner our export trade will benefit and its effect upon the depressing problem of unemployment is so slight as to be

Digitized by Google

almost negligible. The advantages which the construction of a tunnel might offer seem meagre in the extreme, apart from their uncertainty, while the risk of disturbance to a flexible traffic system already in existence are, as Lord Ebbisham points out, very real indeed. It should be borne in mind that the Committee has considered the project only from the economic point of view and it may be that examination from other aspects will reveal advantages which are not apparent at the moment. On the evidence at present available, however, it seems more likely that the last word has been said on the subject and that the proposal will be allowed to sink into oblivion for some years to come.

Noise from Tramcars.

The organised series of experiments conducted by the engineers of the Melbourne and Metropolitan Tramways Board, of which a resume is given in the present issue, will, apart from its academic value, be of particular interest to designers. It is undeniable that the cars of some tramway systems have been potent contributors to the appalling street noises of which the public has rightly complained and from which all town dwellers suffer. Competition from other forms of urban transport has stimulated attempts to attract tramcar passengers by the provision of additional comfort, but it will not be denied that comfort, in public service vehicles at any rate, can be appreciated only in an atmosphere of comparative quiet. Cars which run with a minimum of noise will always be more popular than those which disregard silence—no matter how high the standard of upholstered luxury which they offer. The vehicle which, shrieking and grinding on its laborious way, proclaims its decrepitude by the din it creates, not only fails to attract custom, but is an active apostle of the doctrine of the abolition of its kind. The Australian experiments, while exploding many theories as to the sources of noise in tramcars, have conclusively proved that, next to imperfections in track, ill-fitting and worn gears are productive of irritating din. The article by a contributor to our issue of March 13, on materials for tramway and traction gears, has a special bearing upon this aspect of the noise problem and, taken in conjunction with the very interesting data which has been obtained in Australia with reference to gear lubricants, is indicative of a profitable field for experiment and research.

L.N.E.R. SUBURBAN ELECTRIFICATION.

Details of the project for electrifying the L.N.E.R. lines from King's Cross to northern suburban districts were issued on April 4 by Mr. T. Teasdale, assistant general manager. The scheme has been laid before the Development Act Committee with an application for assistance, and its carrying out is to be conditional upon the grant of such assistance.

The scheme includes the electrification of the main lines of the Great Northern system leading out of London via Hadfield and Enfield as far as Welwyn Garden City and Hertford, 20 miles from King's Cross. Suburban branches leading from Finsbury Park to Alexandra Palace, High Barnet, and Edgware will also be electrified. The electric line will comprise 60 miles of route, equal to 173 miles of single track. The estimated cost is £3,700,000, and there is a further item of £650,000 for widening tunnels.

The intention is to double the existing services. At present the company run 1,945,000 train miles per annum in the area, and when the electrification is complete, train mileage will be increased to 4,000,000 per annum. The L.N.E.R. now carries 28,000,000 suburban passengers a year through Finsbury Park.

It is anticipated that the work of electrification will take about three years, but, as mentioned above, the publication of the details does not indicate the determination of the company to proceed.

MUNICIPAL TRAMWAYS AND TRANSPORT ASSOCIATION.

Annual Meeting of the Managers' Section.

The annual meeting of the Managers' Section of the Municipal Tramways and Transport Association will take place at Nottingham on May 29 and 30. Mr. C. Owen Silvers, general manager of Wolverhampton Corporation Transport, and Mr. W. G. Marks, general manager of Nottingham Corporation Transport, will introduce the subject of "The Trackless Trolley System of Passenger Transport."

Mr. T. Smalley, general manager of Barrow Corporation Tramways, and Mr. A. A. Blackburn, general manager of Huddersfield Corporation Tramways, will speak on "The Prevention and Detection of Irregularities."

Mr. L. E. Harvey, general manager of Ilford Corporation Tramways, will read a paper on "Some Aspects of Tramcar Development."

It had been arranged that the annual conference of the Association should be held at Harrogate from September 10 to 12, 1930. The Council, having ascertained that it would be impossible to obtain hotel accommodation on the dates named, owing to the Doncaster Races, are considering other dates.

The Council of the Association has approved the appointment of a new committee of the British Engineering Standards Association, to be styled "The Technical Committee on Tramways Development."

Digitized by Google

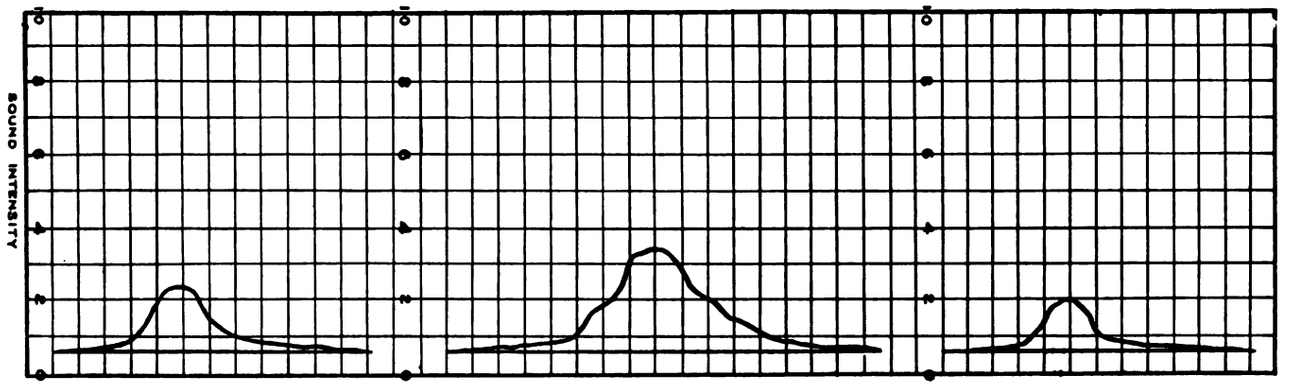
REDUCING NOISE FROM TRAMCARS.

AN ORGANISED CAMPAIGN IN MELBOURNE.

Public agitation for the reduction of street noises has recently resulted in the passing of legislation empowering the police to proceed against the authors of unnecessary noise; and it is significant that, until this came about, no individual effort to deal with this increasingly difficult problem was apparent. It is, therefore, of interest to record that in Australia the engineers of the Melbourne and Metropolitan Tramways were, from the commencement of the Tramway Board's activities in 1919, directing their attention to the question of noise produced by tramcars.

It was in July, 1919, that the Melbourne and Metropolitan Tramways Board was constituted to take control of the various municipal tramway systems operating in Melbourne and its suburbs. In addition to co-ordinating and unifying the various systems taken over, including the modernisation of the equipment and the construction of the track, the Board was faced with the task of converting the main cable system which operated in the centre of the city. It was also charged with the duty of preparing a general scheme for the future development of tramways for the service of the metropolis.

One of the first steps taken in connection with the noise problem was the appointment of a special officer to report noisy or defective cars. The standard of maintenance thus raised was not limited to electric cars but included cable cars and their trailers. The latter, on account of their light weight and slow speed, made little noise in the streets but, as a result of the attention which they received, rattling and grinding were gradually reduced.



Records of a Noise Test on Car No. 247—Melbourne and Metropolitan Tramways.

During the progress of investigations into the sources of noise from the cars press agitation against street noises was commenced, with particular reference to tramcars. This was probably due to the fact that, with the increase in mileage of track laid on concrete under the Board's reconstruction programme and with the putting into service of a number of heavy four-motor bogie cars with 26-in. wheels, rail corrugation, which had previously been noticeable at only a few special places, developed very rapidly. The rail grinding equipment which it was decided to operate was, in order to avoid loss of time in obtaining tenders from abroad, designed and built by a Melbourne firm.

While the two machines ordered were in course of construction rail corrugation increased and with it the public agitation against noise. Many theories were advanced and much free advice tendered by those members of the public who, lacking practical knowledge, could not believe that the planing of the tracks would eliminate the main source of the trouble.

At this stage steps were taken to record by means of graphs, of one of which a reproduction is given, the volume of noise produced, in order that data might be obtained as to the effect of the various alterations in equipment which were being tried with a view to elimination of noise. For this purpose a wireless loud speaker of the electrostatic or condenser type was used as a "pick-up" in connection with a three-valve amplifying unit.

The experiments hereafter detailed dealing with the reduction of noise, together with the observed results, are divided into sections as follow:—(*a*) Trucks, including wheels, gears, etc.; (*b*) car bodies, trolleys, etc.; (*c*) track construction; (*d*) general and laboratory tests.

TRUCKS.

Steel horn stay liners, between the axle box and horn stay, were replaced by an asbestos brake lining moulded to shape. This stopped the rattle which took place when the steel liners became loose or axle boxes became worn.

Fibre washers were substituted for those of mild steel, which got rid of a lot of jingling.

Rubber was inserted between bolster centre and bolsters and under radial plates, but noise record showed no improvement.

The suspension of the motors in the trucks has been altered to "nose" type suspension in which the nose of the motor sits upon a rubber pad, 3 in. in thickness, supported by a bracket attached to the truck transom. This was done with the object of reducing impact and noise from the motor due to shocks and when passing over crossings.

An interesting experiment was made by enclosing the two trucks under a car by building on the truck frame a complete box made of composition board. At first the trucks were run without any top covering but, as no improvement could be noted, the covering was subsequently extended over the top of the wheels. The sides of the boxes reached to within 6 in. of the ground and the sides and portions of the top were hinged in order to facilitate inspection. It was noticed that with this arrangement there was an increase in the temperature of the motors, although not to such an extent as would endanger them. The car was run in service about two months, but no improvement in noise reduction could be noted.

The rod and chain connecting the hand brake staff to the brake beam caused noise and to overcome this a steel wire rope was substituted. This is now general practice.

One pair of trucks was manufactured with all parts made to machine fits, but when the trucks were tried for noise no appreciable improvement could be noted over the standard trucks.

WHEELS.

A disc wheel centre was treated by fastening, on each side of the centre, four rubber pads, about 5 in. square by $\frac{1}{8}$ in. thick. The rubber was maintained in position by a sheet of iron covering each piece, and the pads were held to the wheel centre by bolts which were insulated from the centre by rubber. The axle, on which the centres were pressed, having been suspended in air and the tyre struck with a hammer, it was observed that all ring from the tyre and centre was absent. This seemed so satisfactory that a car was selected and a record taken of the noise which it produced upon a given section of track prior to its being fitted with rubber pads on all wheel centres. However, upon being run over the same section of track after the pads were fitted it was found that the noise was not reduced to any appreciable extent.

Cars fitted with cast steel and cast-iron spoke wheel centres were tried for noise against those fitted with cast steel disc centres, but no diminution in noise could be detected.

Tyres were treated in several ways. For instance, a copper ring was placed between the tyre and wheel centre when the tyre was being shrunk on. In another case, a dove-tail shaped groove, $\frac{3}{4}$ in. by $\frac{1}{2}$ in. was cut on the inner faces of two tyres. Lead was beaten into this groove but worked out after the car had been in service a few weeks. Two other tyres were treated by machining half the flange away and inserting a piece of $\frac{1}{4}$-in. thick rubber, about $1\frac{1}{2}$ in. wide against the face of the tyre. This rubber was held in position by a steel band rivetted on and machined to make a uniform flange. In service these tyres only lasted two weeks owing to the flange opening out. One set of tyres was treated by clamping a strip of rubber $\frac{1}{8}$ in. thick by 2 in. wide to the inner faces. This was done by turning out a recess $\frac{3}{8}$ in. in depth and rivetting a steel ring over the rubber, through the width of the tyre. In nearly every case there was a complete absence of ring when the tyre treated was struck with a hammer, but when in service no reduction of noise could be detected.

GEARS

Much noise is produced by gears and exhaustive experiments were carried out with a view to its elimination. New gears and pinions usually produce very little noise after they are run in

Digitized by Google

It is after much wear has taken place that noise is produced. Slack bearings also have the effect of producing noise from the gears. In order to eliminate these conditions as far as possible the tolerances for renewal of bearings were made as fine as possible, suspension and armature bearings being renewed when the wear was in excess of $\frac{1}{16}$ in., and pinions renewed before they became very slack. Many special gears and pinions, alleged by the makers to be quiet, were tried but no appreciable reduction of noise resulted. It was, however, noted that steel cast gears were generally quieter than forged ones.

The following were among the experiments made: Gears with a ring of lead beaten into a groove cut into the rim under the teeth; gears with a steel ring welded under the rim; gears made with a receptacle or cup under the rim into which grease was supposed to work and so silence the gear; gears, the centre of which were filled with a cork compound and several which had pads of rubber and wood fastened to them.

In a number of cases the teeth of gears were ground after hardening, thereby eliminating the effects of the distortion which took place during the hardening process. This practice has been adopted as standard.

Bran and also finely divided cork mixed with gear grease had the effect of silencing the gears for a short while, but after a car had run a few miles the gears were quite as noisy as before the application. From this it appeared that gear noise could be reduced by the use of a correct lubricant and to this end an endeavour was made to find a lubricant which would reduce tooth wear. Briefly, the procedure was as follows: In order to obtain quick results, eight untreated nickel chrome pinions were fitted with hardened gear wheels and each pair treated with a particular lubricant and the cases sealed. The tooth wear was checked every 12,000 miles and the result graphed. By this method unsatisfactory lubricants were eliminated. It was found, after a mileage of 60,000 that three pinions, lubricated with bituminous compounds, showed an average reduction at the pitch line of .01 in., whereas the best grease lubricant showed a reduction of .06 in. A bituminous lubricant was therefore decided upon for all cars, and the investigation is still proceeding.

A pair of phosphor bronze gear wheels, with tooth dimensions similar to ordinary car gears, meshing with steel pinions, has been in service for eighteen months with promising results. Two cars, fitted with worm gearing, have been in service for two years with very satisfactory results.

There was no improvement with regard to noise when an experiment was made in fitting a car with aluminium gear cases.

Car Bodies.

To test the theory that curved side panels were quieter than straight ones a curved side car and a straight side car were run over the same track and a noise record made. The cars were then taken to the shops and the bodies changed, the truck from the curved side car being put under the straight side car and *vice versa*. A noise test was again made, but the result proved that noise produced by the trucks was the same, irrespectively of which car body was on them.

Steel panels have a tendency to drum and, to overcome this, lagging the back of the panel with heavy jute canvas was resorted to. This effectually stopped drumming.

Seven-ply wood panels were tried in place of steel ones, but without any improvement in regard to noise. Similar results were obtained with aluminium, plymetal and plymax panels. On two cars, 4 in. by $\frac{1}{4}$ in. rubber was inserted between the car body and the underframe and, on another, a special type felt insert was arranged with the idea of insulating truck noises from the car body. No improvement could, however, be detected on these cars. A slight reduction in noise was noted in the saloons of cars with rubber covered floors. This appears to be due to the rubber absorbing some of the sound.

Glass in window sashes is kept tight and sashes are fitted with springs to prevent rattling.

Trolley Noises.

Noise is produced by the trolley wheel, both on the overhead and in the saloon of a car. That on the overhead, transmitted along the wires and down the steel standards, cannot very well be overcome, although it was proved by the noise recorder that 8 to 10 per cent. of the noise from a very quiet running car came from the overhead. These tests were taken both in the open, with parks on each side of the track, and between high buildings. Similar results were observed in each place.

With the object of reducing the noise from the trolley wheel heard in the saloon, felt, soft rubber, cork and springs placed between the trolley base and the platform were all experimented with. As, however, noise from the trucks predominated in the saloon it was not conclusively proved that any improvement in regard to trolley noise resulted. The best results were obtained on a car upon which the trolley base fittings had been removed from the roof and placed on timbers raised above the roof, running the full length of the saloon and fastened only at the bulkheads. A trolley pole filled with sawdust did not effect any reduction of noise in the saloon.

The hook for holding down the leading trolley pole on bogie cars was lined with asbestos brake lining in order to reduce the noise produced when placing the pole under the hook.

Track Construction.

A number of tests for recording the noise produced from various types of track construction were made.

For these tests, a very quite running standard bogie car was selected and fitted with newly turned tyres in order to keep the car noise down to a minimum with the track noise predominant. A speedometer was fitted on the car and, as far as possible, a speed of 20 M.P.H. was maintained when passing the recording post. Moreover, with the object of eliminating gear noise, the car was allowed to coast. The rails were cleaned or scrubbed by a cleaning truck prior to the tests being made and all dirt was removed. Great care was taken to see that there was not the slightest flat on the wheels. During one of the tests, the wheels picked up a small piece of bitumen and the noise produced was such that the test was held up until it was removed. Tests were made on clean and unclean rails.

From the experiments it appears that rails having equally clean surfaces, free from corrugation and supported on a concrete base so as to have no appreciable deflection will give approximately the same noise intensity whatever the type of sleeper, cushion or rail filler used. An asphalte surface appears to be less noisy than a wood paved one, possibly due to better contact of the paving material with the rail; and track with macadam paving seems less noisy than woodpaving.

Comparing steel ties with wooden sleepers, the result appears to be slightly in favour of the wood, but the readings may have been affected by the differing types of verandahs and buildings behind the recording post and it is probable that with identical rails and "background" the difference would be negligible.

A test was carried out to see if any reduction in noise was apparent when the track was wet. A car was run past the recording post several times on a clean dry track and the hose was then turned on the track so that it was wet all over. Upon repeating the running test no reduction in noise could be noted.

One quite definite result emerged from the tests, although it was generally known long before the trials were made. It is that there is a reduction of over 50 per cent. of noise when a car passes from a track laid on a concrete foundation with wood paving in a paved street to a "parked" track laid on wood sleepers on open ballast.

The general conclusion reached from the experiments above referred to is that fancy methods of construction of track or equipment are of little or no service. Sound construction and a high standard of maintenance will result in relatively noiseless operation, provided that the track is kept clean and free from corrugation and that wheel flats are ground out as they appear.

BERMUDA ELECTRIC RAILWAY.

Preliminary Difficulties Overcome.

Motoring in the old and prosperous colony of Bermuda is prohibited by law because of the dangerous character of the roads, and the only mechanical means of transport in the islands is the monopoly of Bermuda Traction, Ltd., of which Mr. G. C. Hans Hamilton is chairman. This company has for some time been engaged in the construction of an electric railway. Unfortunately, unforeseen circumstances arose and the first report detailed a number of troubles that the company has encountered. Shortly after the formation of the company, Col. Du Cain, one of the partners of Sir John Woolfe Barry & Partners, went out to arrange for the detailed survey of the route and for the construction work. Shortly after his return difficulties arose in regard to acquisition of land. The Bermuda Railway Act provided that where land had to be compulsorily purchased and the valuation of the Commissioners was not accepted, adjudication had to be made by juries. Arrangements for the acquisition of land, as often happens, worked adversely for the company.

An amending Act, passed in June, 1929, which extended the period of construction to June 22, 1931, has improved matters and hastened procedure, but an extra total charge of £137,000 is anticipated and borrowing powers are to be increased in consultation with the debenture holders. There is a good prospect of ultimate financial success and work is now going ahead. The estimated net revenue of £66,700 will, it is expected, be realised, and when in full operation the railway should prove a profitable undertaking.

Digitized by Google

BOMBAY CONFERENCE ON ELECTRICITY SUPPLY AND TRANSPORT.

A conference of the representatives of the following Electric Supply Companies and Transportation Undertakings throughout India and Burma was recently held in the offices of the Bombay Electric Supply & Tramways Co., Electric House, Bombay :—

Ahmedabad Electricity
Andhra Valley Power Supply
Bhagalpur Electric Supply
Bombay Electric Supply & Tramways
Bombay Suburban Electric Supply
Burma Electric Supply
Calcutta Electric Supply Corporation
Calcutta Tramways
Cawnpore Electric Supply Corporation
Dacca Electric Supply
Delhi Electric Supply & Traction
Karachi Electric Supply Corporation
Kundley Power Co.
Mozufferpore Electric Supply
Patna Electric Supply
Rangoon Electric Tramways & Supply
Shahjahanpur Electric Supply
Surat Electricity
Tata Hydro Electric Power Supply
Tata Hydro Agents, and
Tata Power Co.

Mr. C. N. Moberly, C.I.E., general manager of the Bombay Electric Supply and Tramways Co., was voted to the chair, and a representative of the Electrical Development Association attended throughout. The objective pursued in the papers read and the discussions was how to increase the use of electrical energy in India and to improve transportation for the general benefit of the community.

Members of the Conference on Electricity Supply and Transport held in Bombay.

Electrical Progress.

The programme opened with a general paper on " Progress." In this the thesis was expounded that progress depended on an active sales policy, with intimate contact with the consumer, because every other activity hinged on this—costs, tariffs, service and publicity. There was general agreement on the principle that the best " selling force " was the satisfied consumer. From this the conference turned to publicity, and figures were given showing the remarkable manner in which the Indian demand had responded to an active sales policy backed by systematic publicity.

Attention was also drawn to the results which had flowed from co-operative advertising in Great Britain, instances being the propaganda of the Gas Consumers' Association, the Electrical Development Association, and the work of the Empire Marketing Board. In India there was a parallel in the effective publicity of the Indian State Railways. It was agreed that similar results might be expected from a co-operative advertising campaign conducted by the Electrical Supply Companies in India, and the subject was remitted to the Executive further to explore the ground. Associated with these activities was the question of assisted purchase and the hire of domestic electrical apparatus, the rapid growth of the use of electric refrigerators being cited as an example, and the unanimous decision was reached that assisted purchase and hire were closely linked with a selling campaign.

From this the conference turned to the question of the type of domestic electrical apparatus available. It was shown that whilst many standard articles are well suited to Indian conditions, and are giving good service, in certain directions they are not well adapted to Indian circumstances. Special stress was laid on the desirability of encouraging the use of sound electrical apparatus, as cheap and inferior articles never gave good service.

Tramcars of the Future.

From several stand-points the field of transportation was examined. A most interesting discussion on the tramcars of the future was illustrated by a model of a high-capacity, double-decked car, with a low platform for exit and entrance, central doors opened and closed by power, and enclosed vestibules for the conductor and driver. The discussion revealed a difference of opinion between experts as to the respective advantages of the double-deck and the single-deck car, with or without a trailer. The speakers agreed that each transportation agency must work out the most suitable unit in relation to its local conditions. There was agreement, however, that the tramcar of the future must be bright, well-lighted and clean, with comfortable seating, and that the transportation companies in these directions must keep well abreast of possible competition. Emphasis was also placed on the importance of speed, and particulars were given of the plans of various companies in applying the best modern electrical practice to their new stock.

A specially interesting phase of the discussion dealt with the rationalisation of transport. The introducer of this subject made it clear that by rationalisation he did not mean the elimination of competition, for competition was the life-blood of progress and monopolists had suffered from lack of it. Nor did he advocate rationalisation in the narrow interests of the transportation companies ; he preferred to discuss it from the stand-point of the community.

Traffic Authorities Needed in India.

Rationalisation connoted the elimination of unnecessary duplication, the needs of the community being the means of deciding whether competition was desirable or necessary. The needs of the community demanded that the transportation systems should be efficient, and that was practicable only if they were profitable.

The last word on the question of unrestricted competition had been said in the report of the Royal Commission on Transport in

Digitized by Google

Great Britain. After describing the evils of non-control in increasing congestion, reducing the number of non-paying services, and in increasing the perils of the road, the Commission recommended the establishment of a limited number of Area Commissioners, with full power to regulate the traffic needs of each area and to co-ordinate all forms of passenger transport.

Another feature of the discussion was the general agreement that in India the authorities and transport undertakings were sinning against the light in allowing chaotic conditions to grow up in some of the large cities other than Bombay and in moffussil centres.

The Conference unanimously endorsed a proposal pressing for the establishment in India of Traffic Authorities, representing the local authorities, the traffic police, the transportation agencies of every character, and the pedestrian who had the right to be heard.

During the week visits were paid to many places of special interest to electrical engineers and transportation officers, including one to the receiving station of the Hydro companies at Dharavi and the power station of the G.I.P. Railway at Chola.

TRAMWAY AND LIGHT RAILWAY NOTES.

BOURNEMOUTH.

THE CORPORATION OBTAINS TROLLEY OMNIBUS POWERS.

The local Legislation Committee of the House of Commons on March 20 passed the clauses of the Corporation Bill, and granted protection from competition, although the Ministry of Transport objected on the ground that the matter was dealt with generally in the Road Traffic Bill. Powers were sought to substitute trolley vehicles for tramcars, to run trolley vehicles on fourteen new routes, and also to run petrol omnibuses. Mr. A. R. Fearnley, general manager of Sheffield Corporation Tramways and Motors, in giving evidence in support of the Bill, said he regarded trolley vehicles as particularly well suited to towns of medium size, where the expense of constructing or reconstructing tramways was not justified. Trolley vehicles were somewhat faster than tramcars, did no more damage to the roads than ordinary omnibuses, and were slightly cheaper to run.

BRIGHTON.

THE TRANSPORT CO-ORDINATION SCHEME.

Brighton and Hove Corporations and Thomas Tilling, Ltd., have practically agreed on a joint transport scheme for both town and the surrounding district. It is proposed to form a company with an approximate capital of £780,000, which will be controlled by a board consisting of representatives from the three parties concerned. It is stated that the capital and representatives of the board will be apportioned as follow: Thomas Tilling, Ltd., capital £350,000, and two representatives; Brighton Corporation, capital £300,000, and two representatives; Hove Corporation, capital £130,000, and one representative. The suggested joint board would be prohibited from substituting omnibuses for tramcars or from discontinuing any tramway service without the consent of Brighton Corporation. The scheme will, of course, require sanction by Parliament.

BURNLEY.

TRAMWAY INTERFERENCE WITH "WIRELESS."

On the suggestion of the B.B.C. certain alterations have been effected in the electrical equipment of the Burnley tramcars with a view to minimising interference with wireless reception. The trouble is stated to have been reduced considerably.

DARLINGTON.

THE SIXTH TROLLEY OMNIBUS EXTENSION.

The new extension of the trolley omnibus system at Darlington from Market Hall to Geneva Road West has been inspected by Colonel Anderson on behalf of the Ministry of Transport, and is now opened for service. It forms the sixth extension of the original tramway system, which was converted for the operation of trolley vehicles in December, 1925. The work of installing all the new extensions has been carried out under contract by Clough, Smith and Co., Ltd., 36, Victoria Street, London, S.W.1.

GLASGOW.

A STOPPING PLACE INDICATOR—ALL CARS TO BE HEATED—FEWEST FATALITIES ATTRIBUTED TO TRAMCARS.

Mr. J. Whitfield, of West George Street, Glasgow, has invented an electrical apparatus which indicates each stopping place to passengers in a tramcar. The apparatus is actuated as the trolley engages with contacts on the overhead wire, and flashes the name of the next stopping place on an illuminated banner fixed at each end of the car. Warning of a stage point is given about 30 yards from the stop, while the name of the next stage point is indicated. All the tramcars are to be electrically heated in the upper and lower saloons. The extra lighting circuit on the upper deck which permits reading outside as well as inside is also to be provided. The town clerk has reported to the City Council that during the last twelve months the number of fatal accidents in the city were: On railways 11, on tramways 14, and on omnibuses 68. Mr. Dollan, convener of the Transport Committee, suggested that the town clerk should bring the figures before the Magistrates' Committee for consideration, in view of the fact that about ten times more passengers were carried on the tramcars than on the omnibuses and trains combined. The public should recognise that tramcars were safer and more comfortable.

LONDON.

WIDTH OF HIGHWAYS CARRYING TRAMWAYS—TRAMWAY SUBWAY NOT FOR MOTOR VEHICLES—BLACKHEATH'S REQUEST FOR TRAMWAYS.

The Highways Committee of Wandsworth Council has reported that discussions have taken place between officers of the Ministry of Transport and the London County Council as to minimum and maximum widths to be aimed at in widening main highways in which tramways are operating. The suggested minimum is 87 feet. After considering a report by the borough engineer the committee formed the opinion that the main roads in the borough where tramways are in operation should, as a general rule, be widened to 100 feet as and when opportunities occur. The Highways Committee of the County Council has presented a report with reference to the suggestion that the subway from Victoria Embankment to Southampton Row, which is being deepened to admit double-deck cars, should be used for omnibuses and other motor traffic. Both the Minister of Transport, after advice by the London and Home Counties Traffic Advisory Committee, and the Commissioner of Police, concurred in the opinion that the proposal was not in the best interests of the circulation of traffic, and the committee recommended that no action be taken. At the end of March the London General Omnibus Company discontinued on Sundays the omnibus service which they are providing from Charing Cross Underground Station to Theobald's Road while the subway is closed. Following local requests the Highways Committee of the County Council has asked the Ministry of Transport for their view regarding a suggested extension of the tramways from Lee Green to Blackheath.

MANCHESTER.

THE LAST CAR DIFFICULTY—A TRAMWAY NOT TO BE CONSTRUCTED—"TICKET ISSUER" TRIAL—WHERE PEDESTRIANS CAN STOP TRAFFIC.

Following the departure of later running of tramcars on week-days, Manchester Transport Department is introducing later last cars on Sundays. Complaints are still received that people miss the last cars. The official reply is that if travellers would time their return a little before the last car the department would be helped considerably in meeting the needs of the public. The Corporation Transport Committee has decided not to construct tramways in Mauldeth Road West (from Princess Road to Barlow Moor Road) and Broadway, Moston. A reserved area had been provided in each road for the ultimate construction of a sleeper track. A report presented by the general manager stated that statutory authority for the construction of these lines had not been applied for, and having regard to the present development of transport, he was of opinion that such tramways should not be constructed. To test the claim of the maker of the "Ticket Issuer" that his machine will effect an economy, the Tramways Department is making a trial of the invention. Manchester branch of the Pedestrians' Association has asked the Watch Committee to consider installing at compulsory tramcar stops the type of signal now being tried in Oldham Street and Portland Street. The pedestrian, by pressing a button, can bring all traffic to a halt and cross the road in safety.

NEWCASTLE-ON-TYNE.

AN EFFORT TO INCREASE THE AVERAGE SPEED.

By elimination of a number of compulsory stopping places, the Tramways Department is making an effort to further increase the average speed of tramcars. Last year the average speed over all the routes increased from 7.66 to 8.36 miles per hour, but it is contended that the public are slow in the boarding of cars.

NEWPORT.

TROLLEY OMNIBUS POWERS—NO EXTENSIONS BY PROVISIONAL ORDER.

A Select Committee of the House of Commons has approved the preamble of the Newport Corporation Bill, which sought powers to remove the tramways and substitute trolley omnibuses, and to run them for a short distance outside the borough. The Corporation asked for power to apply to the Ministry of Transport for a Provisional Order permitting them to run other trolley vehicle services outside the borough when they became necessary. The Committee decided to give powers to run trolley vehicles, including on a new road, but stipulated that no overhead equipment should be erected until the road had been constructed to the satisfaction of the Minister of Transport. They refused to permit extensions by Provisional Order.

Digitized by Google

PERSONAL.

Mr. J. P. Savage, formerly with the Midland Red Omnibus Company, has been appointed assistant manager of Wrexham and District Transport Company.

Mr. W. Tonkinson, chief engineer to the Electric Construction Co. Ltd., has returned to Wolverhampton after a three months' tour to the United States and Canada.

Mr. G. H. Peake, deputy chairman, Yorkshire Electric Power Company, has been appointed chairman to the company, in succession to the late Mr. A. G. Lupton.

Mr. J. C. O'Neill has been recommended by East Ham Tramways Committee for appointment to the position of traffic superintendent at a commencing salary of £325 per annum.

Mr. H. C. W. Ludgate, general manager of Morecambe Corporation omnibus department, has been appointed general manager of Swindon Corporation transport department.

Mr. McCartney, of Preston, formerly a member of the English Electric Company's staff, at Thornbury Works, has been appointed supervisor of Bradford trolley omnibus services.

Mr. S. G. Davy, of Exeter, has been appointed traffic superintendent of Derby Corporation Tramways. Previous to going to Exeter, Mr. Davy held an appointment at Rotherham.

Mr. T. Medcalf, passenger transport manager of Swindon Corporation, who recently retired after 27 years' service, has been presented by the staff with a silver salver and a bookcase.

Mr. T. B. Keep, for some time associated with Dennis Bros., Ltd., and for several years a director of Rootes, Ltd., has resigned his position with the latter company, and has been appointed director and general manager of Commer Cars, Ltd.

Mr. W. R. Shephard, O.B.E., managing director of Tilling-Stevens Motors, Ltd., has been appointed president of the Motor Trade Association. Mr. Shephard was senior vice-president of the Association, which he represented at the World Transport Congress in New York in 1926, and at Rome in 1928.

Mr. A. A. Jackson, formerly chief clerk of the Nottingham Transport Department, has been presented with a gold watch, suitably inscribed, on his appointment as deputy manager at Coventry. The presentation was made by the general manager, Mr. G. W. Marks, who paid a tribute to Mr. Jackson's services in Nottingham.

Sir John Reeve Brooke, C.B., has been appointed vice-chairman of the Electricity Commissioners in succession to Sir Harry Haward, who has retired from that position. Sir John Reeve Brooke, who was born in 1880, was Secretary to the Minister of Transport from 1923-1927, and to the Central Electricity Board from 1927-1929. He has been an Electricity Commissioner since 1929.

Mr. Cyril F. Dennis, of W. B. Dick & Co., Ltd., delivered an address on Russia before the Nottingham Rotary Club on March 24 Mr. Dennis outlined impressions received while on a visit to Russia, and said that Russia must help herself before she can be assisted. The present pathetic position in that country was due to two forms of extremist Government—the Czarist and the Communist. It was said that the people had escaped from the tyranny of the Czars, but the present system was a poor substitute.

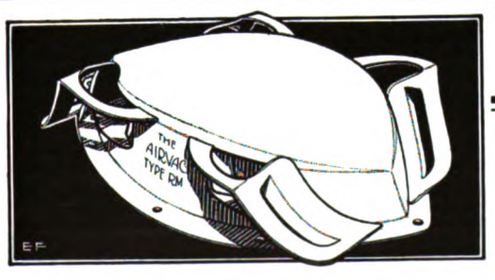
Alderman Richard Mayne, the popular chairman of the Newcastle Tramways and Electricity Committee, celebrated his seventieth birthday on March 31. He first became a member of the City Council in 1904, and was appointed chairman of the Transport and Electricity Committee in 1916. In 1920 he was made an alderman and in that year he was Sheriff. For many years he has been a member of the Council of the Municipal Tramways and Transport Association, of which he was president in 1921-22.

Mr. A. Daggett, on retiring from the position of traffic superintendent of Leeds City Tramways after 28 years' service, has been presented by the employees with a "grandmother" clock, a silver cigarette case, and a gold watch. Mr. Graham Ford, vice-chairman of the Tramways Committee, paid a tribute to the valuable service which Mr. Daggett had rendered, and to the loyalty of the men. Mr. Daggett, in reply, thanked Mr. Horsfield, the general manager, and the Tramways Committee for the consideration which had always been shown to him.

A Tribute to Ipswich Transport Officers.—At the opening of the new generating station of Ipswich Corporation, which includes a 12,500 KW. Lungstrom turbo-alternating set installed by the Brush Electrical Engineering Company, Councillor S. C. Grimwade, chairman of the Electric Supply and Transport Committee, said that the undertaking owed much to two former chairmen (Alderman E. C. Ransome and Councillor W. Reavell), to the former and present managers, Mr. F. Ayton and Mr. A. S. Black, and to a keen staff. Mr. Ayton is now joint managing director of Ransomes, Sims & Jefferies, Ltd., of Ipswich.

Mr. Douglas Hays has resigned his position as general manager and director of the Scottish General Omnibus Company, and other omnibus companies in Scotland on their acquisition by the group of associated interests of the Scottish Motor Traction Company. Mr. Hays was connected with the Falkirk Tramways Company as general manager, engineer, and secretary at their inception in 1905. Early in 1913 the company operated its first motor coach, and from this origin the Scottish General Omnibus Company was formed and expanded to the present fleet of over 300 vehicles. Mr. Hays has been appointed manager of a group of transport undertakings owned by the Midland Counties Electric Supply Company.

Mr. Henry Mozley, general manager of the Burnley Tramways and Omnibus Department, retired on March 31 after nearly 62 years' service with transport undertakings, by far the greater part of the period having been spent at Burnley. Mr. Mozley went to Burnley in 1882 as manager of the tramways undertaking, then owned by a company. When it was acquired by the Corporation in 1901 Mr. Mozley was appointed general manager, and he introduced many important improvements. He early anticipated the success of the motor omnibus, and his administration has always been characterised by energy and foresight. Mr. Mozley was president of the Municipal Tramways and Transport Association in 1916–17 and has been for many years a member of the Executive Council. The Burnley Tramways and Omnibus Committee have placed on record their great appreciation of his services, and have presented him with a free pass on the tramways and omnibuses. The Tramways Committee, at their meeting on April 3, passed the following resolution: That this Committee places on record its appreciation of the zeal, industry, and ability displayed by Mr. Henry Mozley, in the position of General Manager of the Burnley Corporation Tramways and Omnibuses undertaking during the past 29 years, and they hope his years of retirement may bring him much happiness. The administrative staff of the undertaking has presented Mr. Mozley with a reading lamp as a token of their esteem.



Airvac prices are competitive, yet you cannot buy, at any price, a ventilator as efficient, scientific, or of such sturdy construction as the Airvac.

AIRVAC VENTILATORS
Honeypot Works, DARLINGTON

THE LATE THORSTEN VON ZWEIGBERGK.

Electric traction owes a great deal to Thorsten Von Zweigbergk, and it is with great regret that we learn of his death at Stockholm after a long illness. Zweigbergk first made his mark in the electric traction world when with the Walker Electric Co. Under the direction of Professor Sidney Short this company supplied traction equipment which was very successful in service and was well known in England. The Walker Electric Co. was absorbed eventually by the Westinghouse, and Professor Short brought his staff to England, where they assisted in building up the Preston Works of Dick Kerr & Co. in 1900. On Professor Short's death in 1904 Zweigbergk became responsible for all the traction work of Dick Kerr & Co., of which that firm became a part. Zweigbergk's name will always be associated with the invention of the metallic shield blow-out and its application to tramway and railway controllers. This device is too well known to require description, but it is interesting to know that controllers on this system gave excellent results in service even for currents up to 4,000 amps. Perhaps the best known of the earlier railway electrification schemes for which Zweigbergk was responsible were the Liverpool to Southport line of the Lancashire and Yorkshire Railway and the Liverpool Overhead Railway. Later he designed the first electrification of the Bury, Holcombe Brook line of the L. & Y., which was carried out at 3,000 volts D.C., the traction motors being wound for 1,500 volts and connected two in series. This was one of the first 3,000-volt systems put into practical operation. Zweigbergk's work was characterised by soundness of mechanical design. He was a designer by instinct as well as by training, and his work was unmistakable to anyone skilled in the art. He was widely known in the traction world and his loss will be greatly felt. He was born at Lund in Sweden and died at Stockholm on February 11th.

Digitized by Google

CONTRACTS AND ORDERS.

Edgar Allen & Co., Ltd., have an order from Liverpool Tramways Committee for 200 pairs of tramway rail fishplates.

Hull Tramways Committee ordered 5,000 telephone insulators from the Equipment and Engineering Co., Ltd.

Leeds Corporation has accepted the tender of the Metropolitan-Vickers Electrical Company for the installation of two 3,000 k.v.a. transformers.

The Admiralty has contracted with Siemens Electric Lamps and Supplies, Ltd., for several thousand Siemens special battery signalling lamps.

Palestine Electric Corporation, Ltd., has placed an order for 5,000 low-tension insulators and pins with the Equipment and Engineering Co., Ltd.

The British-Thomson Houston Co., Ltd., has received from the London and North-Eastern Railway a twelve months' contract for the supply of Mazda lamps.

Anglo-Argentine Tramways Co., Ltd., has placed an order for one "TA" type E. and E. electro-magnetic crack detector with the Equipment and Engineering Co., Ltd.

Croydon Tramways Committee has recommended acceptance of the tender of the Cargo Fleet Iron Co., Ltd., for the supply of 50 tons of tramway rails at £11 8s. per ton.

Barrow-in-Furness Corporation has accepted the tender of Johnson & Phillips, Ltd., for four 25-K.V.A. 11,000-volt transformers, and of Metropolitan-Vickers, Ltd., for switchgear.

The Equipment and Engineering Co., Ltd., has received an order from the Research Department, Woolwich Arsenal, for one "TA" type E. and E. electro-magnetic crack detector.

J. W. Courtenay, Ltd., of Amberley House, Norfolk Street, London, W.C.2, have been appointed sole advertising contractors to the Burton-on-Trent Corporation Transport Department.

The London & North-Eastern Railway has placed a contract with Siemens Electric Lamps and Supplies, Ltd., for 12 months' supplies of Siemens' gasfilled vacuum and carbon filament lamps.

Siemens Electric Lamps & Supplies, Ltd., have a contract from the Irish Free State Department of Local Government and Public Health for twelve months' supply of Siemens' electric lamps and batteries.

East Ham Tramways Committee has recommended acceptance of the tender of the Brush Electrical Engineering Co., Ltd., for the supply of four double-deck car bodies with trucks and brakes at £1,917 each.

Bath Electricity Committee has placed an order with the Brush Electrical Engineering Co., Ltd., for one 7,000-KW. Brush-Lungstrom turbine alternator. This is the fifth set of this manufacture to be installed by Bath Corporation.

Pontypridd Urban Council has accepted the tender of Clough, Smith & Co., Ltd., 36, Victoria Street, Westminster, for the conversion of the overhead equipment of the Cilfynydd-Treforest section of the tramways for trolley omnibus operation. This represents the first tramway conversion to trolley omnibus system in Wales.

Seats for Manchester Cars.—Manchester Tramways Committee has accepted the tender of "Nesta," Ltd., Brunswick Square, High Road, London, N.17, for 100 sets of upholstered seats for the lower saloon of bogie tramcars, and that of Siddall & Hilton, Ltd., Sowerby Bridge, Yorkshire, for 15 sets of upholstered seats for motor omnibuses.

British Insulated Cables, Ltd., of Prescot, have the contract for erecting an overhead line from Stourport to Banbury for the Shropshire, Worcestershire, and Staffordshire Electric Power Company. This line, fifty miles in length, is to consist of steel cored aluminium conductors supported on steel lattice towers. The voltage is 66,000, and the value of the contract is about £110,000.

Sheffield Tramways Committee has placed contracts as follow:—British Thomson-Houston Co., 41 controllers, £41 each; Cargo Fleet Iron Co., 600 tons Titanium treated rails, £10 18s. 3d. per ton, and 200 tons chromium steel rails, £14 3s. 3d. per ton; British Insulated Cables, Ltd., 800 copper bonds, £8 12s. per 100; 1,000 copper bonds £10 18s. per 100; 100 copper bonds, £15 19s.; and 300 copper bonds, £16 17s. per 100.

Great Yarmouth Corporation has placed a contract with Mr. B. G. Beech for the erection of offices at the tramway department at Caistor Road. Contracts for the supply of uniforms have been allotted as follow:—J. Compton, Sons & Webb, 100 uniforms for drivers and conductors, 30s. 10d. per uniform, and drivers' and conductors' caps 4s. 7d.; Rego Clothiers, inspectors' uniforms, 40s. 3d.; Leicester Hosiery Co., inspectors' caps, 5s. 6d.

The General Electric Co., Ltd., of London, has an order from the Union Construction Co., Ltd., for electrical equipment for the new high-speed tramcars they are constructing for the Uxbridge Road services of the London United Tramways. The order comprises 94 high-speed motors of 70 H.P. on the one-hour rating, 500 volts,

COMMERCIAL AND TECHNICAL PHOTOGRAPHERS

Specialists to the Motor, Tramway & Railway Industries.

EXPERT OPERATORS ALWAYS AVAILABLE.
CONTRACTS UNDERTAKEN IN ALL PARTS OF THE COUNTRY.
Photographic printing and enlarging, Post Cards, Calendars, etc.
Prices on application.
AIR PHOTOS OF FACTORIES, POWER PLANTS, TRAFFIC, etc.
PICTORIAL AIR VIEWS OF TOWNS IN STOCK FOR GUIDE BOOKS.

AEROFILMS LTD. *Tel:* COLINDALE 6183, 6184.
COLINDALE AVENUE, HENDON, LONDON N.W.9

THE
Manchester Armature Repair Co. Ltd.
ELECTRICAL ENGINEERS
FORD LANE, PENDLETON, MANCHESTER

Contractors to Leading Tramway Authorities for
ARMATURE COILS
FIELD COILS
COMMUTATORS
For All Types of Tramway Motors

Telephone—Pendleton 151 *Telegrams*—"Rewinding Manchester"

ESTABLISHED 1856
Contractors for more than Half a Century to the principal British, Indian, Colonial and Government Railways &c. &c.
TEARNE & SONS LTD.
BIRMINGHAM
TRANSFERS
For Tramcars, Railway Carriages, &c.
ARMS - MONOGRAMS - LETTERING
Every Description of Inside and Outside Ornamentation, Notices, etc.
Telephone—Northern 1637 *Telegrams*—"Tearne, Birmingham"

Automatic and Curb Point Controllers
Tramway & Traffic Signals
Porcelain Insulators and Fittings

THE
FOREST CITY ELECTRIC CO., LTD.,
4, Longford Road, Stretford,
MANCHESTER.

Digitized by Google

Leather Upholstery

Unsurpassed for

Public Service Vehicles

1 Economy & Service.

Low cost and capacity to stand hard wear.

2 Clean & Sanitary.

There is nothing to equal it.

3 Appearance & Comfort.

Refined and cheerful.

JOHN T. HART & SONS,

Grange Road,

BERMONDSEY,

LONDON, S.E.

There is no better leather obtainable.

Write for patterns and quotations and all particulars.

96 cam type controllers, and 48 sets of line switches with overload release. The motors are of unusually high capacity for the small diameter of driving wheel to be used, viz., 28 ins.

Pinkston Power Station, Glasgow.—In alluding in a recent issue to the contract placed by the Glasgow Corporation for Pinkston Power Station the name of the company which had received the order was incorrectly given. The award was to the General Electric Co., Ltd., and provides for the supply of 6,600-volt 25-cycle metal-clad switchboard comprising four 1,600 amp. bus section isolators, two 1,600 amp. bus couplers, and twenty-seven 600-amp. outgoing feeders. The gear is of the standard G.E.C. metal-class type embodying oil circuit breakers having a breaking capacity of 350,000 kva.

The English Electric Company announces that among important contracts recently received are the following:—450 "English Electric" type CDB.2 Form F. hand-operated camshaft tramcar controllers for the Glasgow Corporation. These will be similar to those previously supplied. The value of this contract is £26,000. Ninety-four maximum traction type tramcar trucks fitted with roller bearings, 28-in. diameter driving wheels, 4 ft. 6 in. wheel-base, for the Union Construction Company for service on the London United Tramways; the value of this order is about £14,000. Three additional double-deck "English Electric" omnibus bodies to seat 50, on A.E.C. "Regent" chassis, for the Newcastle Corporation.

Glasgow Transport Committee has recommended acceptance of the following tenders in connection with the re-conditioning of 300 tramcars, the total amounting to £208,147:—Motors: General Electric Co., Ltd., and Metropolitan-Vickers Electric Co., Ltd. Controllers: English Electric Co., Ltd., and Metropolitan-Vickers Electric Co., Ltd. Roller-bearing axle boxes: Ransome & Marles Bearing Co., Ltd., Hoffmann Manufacturing Co., Ltd., and Skefko Ball Bearing Co., Ltd. Air brake equipment: Consolidated Brake and Engineering Co., Ltd., and Electro-Mechanical Brake Co., Ltd. Magnetic track brakes: Metropolitan-Vickers Electric Co., Ltd., and Electro-Mechanical Brake Co., Ltd. Truck forgings: Brush Electrical Engineering Co., Ltd., and P. & W. MacLellan, Ltd. Upholstered seats: Bennet Furnishing Co.

SHANNON RIVER POWER STATION.

English Electric Machinery for Tasmania.

As agents for the English Electric Co., Ltd., London, the contract has been placed with Siemens (Australia) Pty., Ltd., by the Hydro-Electric Department, Tasmania, for the water-driven turbo-units and automatic switch-gear for the Shannon River power station.

The new station will contain two 7,250-H.P. reaction turbines direct-coupled to three-phase alternators, each set being provided with a direct-coupled exciter, as well as an auxiliary generator for operating the switch-gear control circuits and automatic devices. The switch-gear for controlling these two units will be entirely automatic in operation with the exception of the actual starting up and synchronising, and the station will run unattended.

Normally, the new station will operate in parallel with the existing Waddamana station, about six miles separating them. The Waddamana station receives its water supply from the Great Lake, but when originally constructed, it was not at that time considered economical to make full use of the total head of water available. Thus a head of approximately 300 ft. remained unutilised.

The purpose of the new station is to make use of this loss of head, the water passing through the Shannon station before being used at Waddamana. The turbines will be of the single-discharge overhung type and each will be rated as follows:—Nett head, 244 ft.; quantity of water, 300 cusecs; output, 7,250 H.P.; speed, 500 R.P.M. The rating of each alternator is:—Output, 5,800 K.V.A.; pressure, 6,600 volts; frequency, 50 cycles.

The water turbines and alternators, including main valves, governor gear, etc., will be of "English Electric" design and will be manufactured partly at the English Electric works in England and partly by the Clyde Engineering Co., Ltd., Sydney.

The switchgear will be designed and manufactured by The English Electric Co. at their Stafford Works, England.

It is expected that the plant will be installed and put into operation early in 1931.

SCOTTISH TRAMWAYS & TRANSPORT ASSOCIATION.

The eighth annual conference of the Scottish Transport Association will be held at the Atholl Palace Hotel, Pitlochry, on Friday and Saturday, May 23 and 24, 1930. The arrangements of the meeting are in the hands of a committee, consisting of Messrs. J. H. Shepheard, Dunfermline (Chairman); D. P. Morrison, Dundee; W. J. H. Penman, Perth; and R. Watson, Edinburgh (hon. secretary and treasurer).

Digitized by Google

TRAFFIC RETURNS.

Tramway and Omnibus Undertakings in the United Kingdom.

NAME OF COMPANY OR CORPORATION	1929. WEEKS ENDING Mar. 9	Mar. 16	Mar. 23	Mar. 30	—	1930. WEEKS ENDING Mar. 8	Mar. 15	Mar. 22	Mar. 29	—	AGGREGATE. Wks.	1930	Increase or Decrease
	£	£	£	£	£	£	£	£	£	£		£	£
Aberdeen Corporation	4,200	4,311	3,891	4,183	...	4,439	4,597	4,161	4,197	...	43⅜	210,965	+ 16,867
Ashton-under Lyne Corporation	1,579	1,639	1,600	1,975	...	1,558	1,521	1,494	1,545	...	52	86,370	+ 3,428
Ayr Corporation	404	422	424	466	...	422	404	412	437	...	45	26,142	+ 1,405
Barrow Corporation	798	793	802	...	...	898	799	813	...	...	51	48,916	+ 4,402
Belfast City	11,375	11,858	11,733	11,889	...	12,447	12,103	12,273	12,237	...	51⅔	634,267	+ 120,174
Birkenhead Corporation	4,460	4,508	4,548	5,158	...	4,551	4,444	4,487	4,630	...	52	264684	+ 20,289
Birmingham Corporation	37,802	39,030	39,956	40,011	...	42,067	39,891	41,545	42,755	...	52	2,159,629	+ 143,912
Blackburn Corporation	1,917	1,994	1,931	1,934	...	1,991	2,106	1,952	2,064	...	51⅔	101,968	+ 1,069
Bradford Corporation	13,444	14,509	13,772	14,239	...	14,180	14,367	13,778	14,336	...	52	767,135	+ 40,458
Brighton Corporation	2,061	2,017	2,090	2,686	...	2,171	2,109	2,152	2,235	...	52	132,164	+ 3,711
Burnley Corporation	3,759	3,564	3,578	4,329	...	3,689	3,538	3,379	3,390	...	...	...	...
Burton-on-Trent Corporation	745	735	765	805	...	858	863	864	833	...	52	29,262	+ 7,970
Bury Corporation	2,519	2,355	2,468	3,061	...	2,856	2,596	2,643	3,082	...	52	135,841	+ 3,999
Cardiff Corporation	6,927	6,992	7,300	7,923	...	7,443	7,419	7,212	7,286	...	51[c]	393,403	+ 9,585
Chatham and District	905	978	948	1,087	...	1,040	1,022	1,011	1,017	...	12	12,713	+ 743
Chesterfield Corporation	1,934	1,881	1,885	2,280	...	2,022	1,964	1,946	1,925	...	52	103,164	+ 3,846
Colchester Corporation	474	461	502	204	...	570	541	531	164	...	1	164	— 40
Colne Corporation	629	696	665	656	...	617	693	594	643	...	52	36,498	+ 218
Coventry Corporation	3,582	3,557	3,705	3,786	...	3,850	3,760	3,825	3,832	...	52	198,658	+ 24,305
Darlington Corporation	953	911	912	990	...	1,040	1,051	1,047	1,045	...	51⅔	52,402	+ 1,876
Derby Corporation	2,851	2,941	2,975	3,252	...	3,238	3,217	3,175	3,239	...	52	169,722	+ 12,957
Dover Corporation	316	312	324	428	...	340	346	353	431	...	52	20,950	+ 816
Dundee City	3,263	...	...	3,537	...	3,303	...	...	3,344	...	45	157,452	+ 5,835
East Ham Corporation	2,205	2,271	2,226	2,307	...	2,261	2,287	2,266	2,224	...	50⅔	119,515	+ 5,533
Edinburgh Corporation	16,130	16,526	16,101	17,493	...	16,896	16,655	16,380	17,254	...	45⅓	809,439	+ 44,188
Exeter Corporation	755	801	787	844	...	770	754	756	732	...	52	43,683	+ 512
Glasgow Corporation	47,599	47,594	48,445	48,863	...	51,335	51,766	50,860	51,841	...	43	2,183,489	+ 164,014
Gloucester Corporation	456	491	470	525	...	634	647	639	633	...	51⅓	31,400	+ 3,401
Grimsby Corporation	1,275	1,266	1,256	1,446	...	1,464	1,404	1,436	1,432	...	51⅓	75,977	+ 7,193
Halifax Corporation	4,173	3,999	4,207	...	...	4,998	4,708	4,857	...	...	51¼	244,388	+ 23,598
Huddersfield Corporation	6,159	6,083	6,042	6,494	...	6,252	5,934	5,939	6,315	...	52	319,406	+ 4,612
Hull Corporation	7,044	7,018	7,152	7,391	...	7,397	7,183	7,198	7,203	...	52	388,043	+ 11,173
Ilford Corporation	1,452	1,435	1,451	1,486	...	1,474	1,477	1,458	1,509	...	51⅔	77,964	+ 1,805
Ipswich Corporation Trolley Buses	1,117	1,131	1,171	1,326	...	1,206	1,225	1,219	1,217	...	52	66,733	+ 4,506
Isle of Thanet	327	381	366	424	...	374	347	345	365	...	12⅓	4,730	+ 150
Kilmarnock Corporation	408	417	428	435	...	460	456	475	479	...	45⅔	21,730	+ 1,615
Leeds Corporation	18,746	18,749	19,058	19,316	...	19,647	19,099	19,137	19,557	...	51⅔	1,016,731	+ 36,615
Leicester Corporation	7,806	7,887	8,122	8,289	...	8,316	8,465	8,137	8,225	...	52	438,791	+ 22,216
Lincoln Corporation Buses	828	806	1,010	976	...	867	848	861	1,175	...	52	48,129	+ 2,081
Liverpool Corporation	28,699	29,139	30,986	29,735	...	29,270	28,780	28,710	31,123	...	51⅔	1,560,687	+ 30,366
London County Council	78,368	81,701	80,942	83,725	...	81,016	82,592	82,380	81,535	...	51⅓	4,298,508	+ 76,380
Luton Corporation	323	350	343	397	...	377	378	375	375	...	51¼	20,733	+ 1,367
Maidstone Corporation	662	704	708	772	...	766	750	756	758	...	51⅓	41,730	+ 3,285
Manchester Corporation	38,219	39,345	39,687	40,629	...	39,571	38,683	38,984	40,124	...	52	2,075,665	+ 56,938
Middlesbrough Corporation	1,577	1,502	1,563	1,644	...	1,715	1,591	1,594	1,641	...	52	86,972	+ 4,300
Newcastle-on-Tyne Corporation	10,664	10,669	11,011	11,161	...	10,918	10,822	10,888	11,070	...	52	612,202	+ 30,975
Newport Corporation	2,273	2,283	2,387	2,514	...	2,347	2,400	2,324	2,290	...	52	127,009	+ 3,143
Northampton Corporation	1,620	1,623	1,674	1,703	...	1,694	1,729	1,662	1,661	...	51⅔	92,196	+ 1,502
Nottingham Corporation	8,717	9,065	8,961	14,195	...	10,093	9,961	9,581	15,993	...	52	505,622	+ 25,539
Oldham Corporation	5,559	5,540	6,142	5,717	...	5,599	5,303	6,439	4,093	...	1	4,093	— 1,624
Plymouth Corporation	5,091	5,122	5,174	6,235	...	5,352	5,384	5,253	6,635	...	52	298,175	+ 12,867
Portsmouth Corporation	5,208	5,107	5,168	6,088	...	6,084	5,661	5,695	5,824	...	52	332,653	+ 21,450
Preston Corporation	1,986	2,062	1,984	2,152	...	2,078	2,051	2,023	2,016	...	51⅔	113,460	+ 4,019
Rawtenstall Corporation	1,303	1,287	1,305	1,528	...	1,357	1,291	1,398	1,339	...	52	71,179	+ 1,561
Reading Corporation	2,122	2,325	2,162	2,486	...	2,350	2,347	2,285	2,237	...	52	126,394	+ 3,580
Rochdale Corporation	4,071	4,306	4,251	5,631	...	4,299	4,237	4,062	4,199	...	...	230,151	— 1,880
Rotherham Corporation	2,458	2,425	2,478	3,062	...	2,722	2,601	2,661	2,785	...	53	145,534	+ 12,166
Salford Corporation	10,667	10,569	10,773	11,119	...	11,414	10,897	11,332	12,987	...	52⅓	587,426	+ 40,536
Sheffield Corporation	19,443	19,886	20,288	20,776	...	21,087	20,214	20,226	20,845	...	52	1,088,143	+ 37,828
Southampton Corporation	3,622	3,740	3,605	3,853	...	4,042	4,002	3,929	4,016	...	51	218,327	+ 20,894
Southend-on-Sea Corporation	1,862	1,802	1,934	3,032	...	1,913	1,903	1,915	2,034	...	52	122,756	+ 1,229
Southport Corporation	1,374	1,394	1,502	2,135	...	1,444	1,430	1,421	1,749	...	52	86,369	+ 294
St. Helens Corporation	1,905	2,062	1,950	2,001	...	1,988	2,108	2,046	2,094	...	51⅔	105,491	+ 8,008
Sunderland Corporation	2,088	2,137	2,170	2,460	...	2,314	2,274	2,310	2,680	...	52	126,190	+ 5,986
Swindon Corporation	528	599	566	614	...	855	905	895	880	...	51¼	42,957	+ 12,820
Wallasey Corporation	2,910	2,867	3,011	3,336	...	2,997	2,842	2,940	2,981	...	52	173,150	+ 18,168
Walsall Corporation	3,261	3,201	3,292	3,600	...	3,581	3,320	3,574	3,475	...	52	180,885	+ 15,678
Walthamstow Corporation	2,213	2,216	2,276	2,409	...	2,384	2,373	2,363	2,416	...	52	126,190	+ 5,986
Warrington Corporation	1,308	1,342	1,310	1,384	...	1,378	1,357	1,495	1,366	...	52	70,463	+ 2,569
West Ham Corporation	5,639	5,853	5,680	6,071	...	6,098	6,156	5,999	6,095	...	51¼	315,475	+ 27,420
Wolverhampton Corporation	5,621	5,653	5,906	6,121	...	5,928	5,742	5,957	6,124	...	52	319,018	+ 27,042
York Corporation	1,235	1,211	...	2,220	...	1,429	1,376	...	2,487	...	52	77,009	+ 6,295

Underground Electric Railways Company of London, Limited.

NAME OF COMPANY	1929. WEEKS ENDING Mar. 9	Mar. 16	Mar. 23	Mar. 30	—	1930. WEEKS ENDING Mar. 8	Mar. 15	Mar. 22	Mar. 29	—	AGGREGATE. Wks.	1930	Increase or Decrease
	£	£	£	£	£	£	£	£	£	£		£	£
Underground Rlys. (Common Fund Co.)	273,900	279,300	285,400	287,100	...	297,600	295,900	294,800	299,800	...	13	3,732,900	+ 333,000
London and Suburban District	39,000	39,700	40,700	42,900	...	43,000	42,600	42,200	43,100	...	13	539,600	+ 60,300

Colonial and Foreign Tramway Traffic Returns.

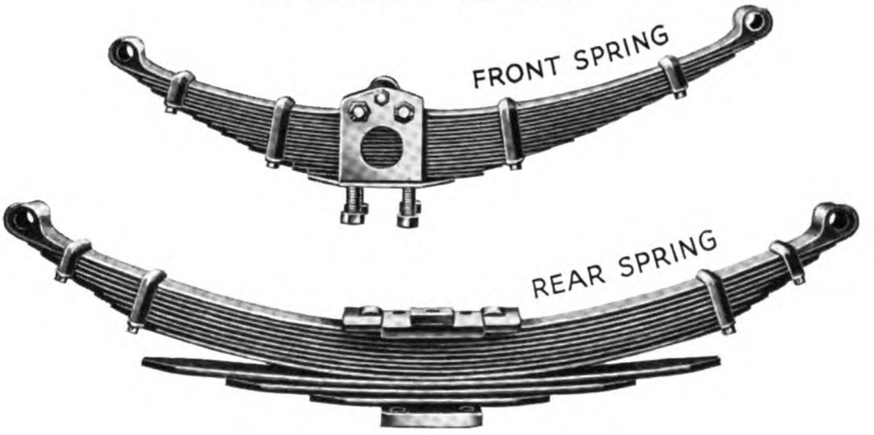
NAME OF COMPANY OR CORPORATION	1929 WEEKS ENDING Mar. 9	Mar. 16	Mar. 23	Mar. 30	—	1930. WEEKS ENDING Mar. 8	Mar. 15	Mar. 22	Mar. 29	—	AGGREGATE. Wks.	1930	Increase or Decrease
	£	£	£	£	£	£	£	£	£	£		£	£
Anglo-Argentine	90,545	89,182	87,830	81,932	...	84,705	86,339	83,037	86,583	...	13	1,087,503	— 31,797
Buenos Aires Lacroze	13,392	13,235	12,837	12,124		12,790	12,615	12,222	12,222	...	39	456,707	— 37,125
Calcutta *Rupees*	134,726	134,753	126,559	116,340	...	133,505	117,779	117,545	114,205	...	12½	1,556,096	— 114,119
Madras (2 weeks) *Rupees*	...	44,921	...	46,245	...	...	56,183	...	45,162	...	12	282,016	+ 21,014

	1928. Oct.	Nov.	1929. Dec.	Jan.	Feb.	Mar.	1929. Oct.	Nov.	Dec.	1930. Jan.	Feb.	Mar.	AGGREGATE. Mths.	1929–30	Increase or Decrease
	£	£	£	£	£	£	£	£	£	£	£	£		£	£
Brazilian Trac. $	3,710,347	3,698,213	3,673,543	3,892,833	3,755,709	3,928,550	4,289,258	4,145,850	3,984,311	3,862,089	3,798,698	...	2	7,660,787	+ 12,245
British Columbia $	1,145,394	1,192,080	1,228,405	1,256,252	1,192,871	...	1,230,278	1,270,922	1,255,522	1,354,314	1,246,551	...	8	9,852,338	+ 552,577
Burma ... Rs.	72,878	66,905	62,582	64,372	63,808	68,993	66,885	62,191	63,485	62,533	63,098	...	7	438,968	— 26,772
Cape Town ...	30,021	...	32,709	31,777	28,274	30,121	27,501	...	30,332	31,036	27,479	...	...	...	...
Carthagena & H. ...	1,701	1,130	676	732	972	853	1,953	1,350	1,314	1,351	1,286	1,003	3	3,640	+ 1,083
Durban	23,402	22,498	26,123	23,916	21,848	...	24,320	23,214	25,452	24,577	21,321	...	7	166,874	+ 2,240
East India ...	3,941	3,803	3,670	3,562	3,055	3,892	4,078	3,905	3,721	3,553	3,127	3,863	8	30,525	+ 768
Kalgoorlie ...	1,738	1,721	1,900	...	...	...	1,703	1,643	1,801	...	...	...	12	20,618	— 468
La Plata	9,781	9,789	10,300	10,015	9,248	10,512	14,104	...	10,327	...	...	...	12	116,149	— 2,604
Para	17,246	14,810	14,360	14,028	14,007	14,971	17,887	15,542	14,487	14,556	13,628	...	3	42,671	+ 276
Port Elizabeth ...	7,404	...	9,830	9,293	7,478	7,857	7,593	...	9,115	9,016	7,110	...	...	...	...
Rangoon ... Rs.	126,400	110,770	130,110	116,835	114,300	121,246	132,742	137,703	138,400	155,080	140,130	164,600	3	459,810	+ 107,429
Shanghai ... $	351,115	327,363	321,970	319,220	294,708	339,785	371,611	360,247	345,415	363,400	322,473	...	2	685,873	+ 71,945
Singapore ... $	113,000	107,000	111,000	115,000	117,000	133,000	133,000	126,000	129,000	139,000	128,000	143,000	6	798,000	+ 102,000
Winnipeg ... $	527,790	553,186	586,264	607,966	570,895	572,492	545,308	597,391	641,362	628,979	567,569	...	2	1,196,548	+ 17,687

Digitized by Google

JONAS WOODHEAD & SONS LTD
- LEEDS. -

WOODHEAD'S PATENT
DIVIDED BACK PLATE
AND
ROLLING BEARING
AUXILIARY SPRINGS
ARRANGED FOR
A 54 SEATER DOUBLE
DECK BUS



LAMINATED SPRING EXPERTS

TELEPHONES
20814
20815
LEEDS

TRADE MARK

TELEGRAMS
FORGE
LEEDS

Digitized by Google

SINCE THE LAST COMMERCIAL MOTOR SHOW (November, 1929) MORE THAN **1,180** NEW TYPE AEC PASSENGER VEHICLES (excluding six-wheelers) HAVE BEEN SOLD

Write for details of the AEC "REGENT" and "REGAL"

AEC

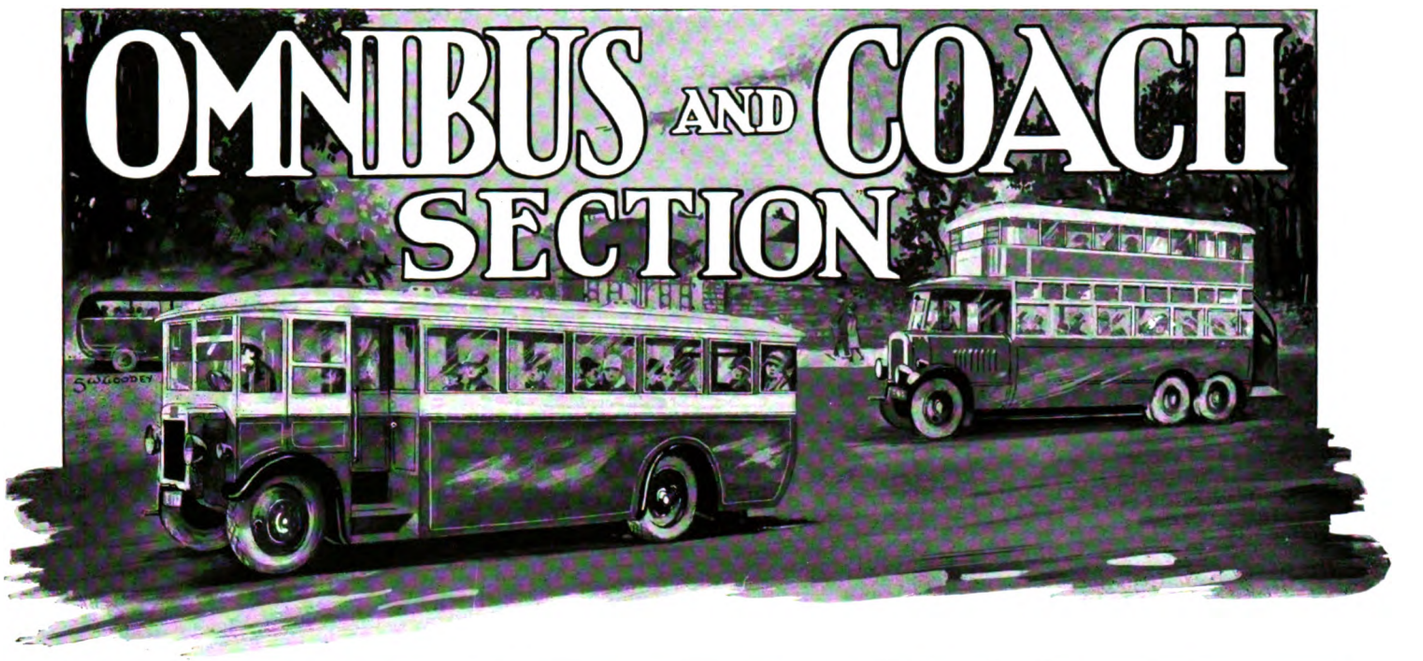
498

THE ASSOCIATED EQUIPMENT CO. LTD.

SOUTHALL, MIDDLESEX

"BUILDERS OF LONDON'S BUSES"

Digitized by Google



OMNIBUS AND COACH SECTION—TWENTY-FIFTH YEAR OF PUBLICATION.

THE IMPENDING REVOLUTION.

It is safe to say that the travelling public are quite unconscious of the revolution that is impending in omnibus arrangements in this country. They seem to take everything for granted and are indifferent where their own interests are concerned. Yet they are the largest party to be affected, whether for better or for worse, by the changes which are coming. As, however, in these pages we do not appeal specially to them, we would speak rather to the parties chiefly concerned whose interest on capital sunk—call it bread and butter—may be affected. At the present time there is before Parliament, as all know, a Road Traffic Bill, which makes large changes in the existing law, alike as regards private cars, lorries and vans, and omnibuses. Confining attention to the last-named, the first point is that the railway companies are almost daily entering into agreements with omnibus companies under which the former take large and in some cases controlling interests in the latter. This foreshadows co-ordination and the abolition of useless competition, which are all to the good. A serious point, however, which must not be overlooked, is that in the event of a railway strike road services also may be paralysed. That apart, the interesting question is, what will be the position of the railway companies and the omnibus companies after the Road Traffic Bill comes into force. And what will be the position of the municipalities which at present run omnibuses? None of these questions can be answered till the Road Traffic Act, as it then will be, is in operation. The Bill divides the country into a number of large licensing areas, for each of which there will be an independent licensing authority. The municipalities will be deprived of their omnibus licensing powers. No longer will they be in the invidious position of being both operators and licensers. The licensing commissioners for each area are to take large and comprehensive views in the light of public requirements. No local politics nor local jealousies between municipal and private enterprise will come in. Whatever happens, all concerned should be setting their houses in order. Yet it is at this very time that the Corporation of Glasgow, with customary audacity, are promoting a Bill in Parliament to give them a monopoly of street passenger transport both within the city and on all tramway routes, extending for many miles, outside the city. That of course is quite incompatible with the Government's Road Transport Bill. It seems likely that Glasgow, and perhaps a few other places, are trying to stem an inevitable revolution. As for the railway companies and omnibus companies, they will no doubt as business people accept the situation as philosophically as possible and strive to carry on.

ROAD TRAFFIC REQUIREMENTS.

Adequate road accommodation is essential if the normal development of transport is to proceed without adding greatly to the danger of all concerned. Now that the railway companies are largely interested in road traffic the coming season is likely to bring about a large increase in fast passenger traffic, not only on the main highways, but upon a widely drawn network of secondary roads leading to more or less popular resorts. Arrangements have already been made for providing the extra facilities required; and when the continuous development of goods service and private car traffic is taken into consideration it is easy to see that the roads will be taxed to their utmost in many parts of the country. Admitting that much has been done in the improvement of the highways during the past few years, there is yet the question that concerns all interested in road transport, that is, whether the traffic is not increasing much faster than the progress of road improvement, and whether national road schemes are in keeping with the requirements not only of to-day's traffic but of future needs. In addition to new roads that are necessary in order to prevent congestion in towns and villages where existing thoroughfares are narrow and winding, much work in road widening, straightening and removal of corners is immediately needed. In many cases it is difficult to understand why well-known danger spots are permitted to remain a menace to road users. Another important problem

Digitized by Google

demanding urgent attention is the nature and contour of the road surface. Various preparations are being tried and in time something like uniformity will undoubtedly be reached. At present the condition of some comparatively new roads is a source of unsuspected danger. The camber of some old roads also demands attention, not only because of the danger it presents but because the useful width of the roads is considerably reduced by unnecessary camber. It is a common occurence on sections of important highways, especially in wet weather, for the stream of traffic to be restricted to a speed of ten miles per hour by cyclists who are afraid to venture too near the side of the road owing to the steep camber. The camber is actually being increased in some places by repairs which are confined to the crown of the road.

VEHICLE DESIGN AND TYRE WEAR.

Operators and drivers of passenger vehicles will be interested in a data sheet—No. 165—issued by the Society of Motor Manufacturers and Traders. It deals with factors in vehicle design which have an adverse effect on pneumatic tyre wear and presents recommendations thereon. Extremely rapid abrasive wear is given as one effect of toe-in of the front wheels. It is preferable that the wheels should be parallel, but if toe-in is necessitated by the steering design, it should not exceed a total of $\frac{1}{8}$ in. measured at the centre of the height of the tyres. If the front wheels are in a position of camber (inclining outwards at the top) rapid abrasive wear is created, particularly on the outside edge, the wear being greatly increased if the inflation pressure is permitted to fall unduly. An exactly vertical position is advised, but if camber is essential it should not exceed 2 degrees per wheel and should be equal for both wheels. In reference to twin pneumatic tyres on commercial vehicles, it is stated that if either or both pairs of tyres fail to share the load equally, excessive wear, usually more severe on the inner tyre, will result, leading to premature failure of the inner tyre as compared with the outer one. To prevent that happening it is recommended that the centre to centre distance between the twin tyres should be no wider apart than is necessary to accommodate the correct size of tyre for the load. In order to obtain maximum tyre life the maximum tyre load at the correct pressure should not differ from that set out in data sheets 157 and 168. During the running life of a vehicle, much more expenditure is incurred on tyres which are too small than on tyres which are correctly proportioned to the load, and if a vehicle is under-tyred there is a possibility of danger to passengers in case of sudden failure. Dealing with brake drum clearances in rear wheels, it is observed that insufficient clearance results in any excessive heating of the brake drum being transferred to the tyre, tube and flaps. The tyre affected is usually the inner one of a twin fitting, resulting in the rubber of the tyre being practically destroyed. In this connection the provision of simple means of frequently adjusting brakes is important, for inaccurate adjustment may result in brakes being set too closely, causing undue heating and unequal bearing on all wheels.

OMNIBUS BODY DESIGN.

The improvements in the design and equipment of omnibuses for public service have been most marked where competition, either with other omnibus operators or a tramway, has compelled attention to the details which appeal to a discriminating public. It remains to be seen what the effect of the amalgamations and working agreements, all intended to remove competition, will be on the type of vehicle ; but once the public has become used to the higher standard of comfort which is being provided, in London as well as in provincial towns, it is difficult to believe they will be content with the plainer and less costly type of vehicle now used for many short journey services. Whether the increased cost of some of the latest additions to town services, both with regard to price and cost of maintenance, is necessary or justified is an open question, especially on routes where the primary object of the service should be rapid transport at the lowest possible fare. In these days of long routes passing through areas entirely different in character, it is difficult to discriminate between the class of passengers carried and to suit the vehicle to a district. Nevertheless, much can be said in favour of a two-fare system. Passengers who are willing to pay for extra comfort would be accommodated in a first-class vehicle. Ordinary travellers, whose desire is to reach a destination at the lowest possible cost, would have the plainly furnished vehicle with large carrying capacity which in many instances would facilitate lower fares. In the luxury vehicle the space taken up by deeply-padded seats and backs reduces the seating capacity to an appreciable extent and, while the time taken in loading and unloading must remain a factor in determining size, it should be a practical proposition to design a conveyance that from the utility point of view would be of considerably more value as a traffic unit in rush period services. Now that a total gross weight of nine and a half tons is permissible such a proposal should be given serious consideration.

GLASGOW'S NEW OMNIBUS REGULATIONS.

At the first meeting of the Glasgow Licensing Court held since the Glasgow Corporation Act, 1929, came into force on March 1, it was reported that licences have now to be obtained for omnibuses which had hitherto plied for hire in the city without licences. The Magistrates' Committee, as licensing authority, had agreed that all licences should be granted on the following conditions :—

(1) That no passenger shall be lifted and set down within the city boundary—*i.e.*, that passengers can only be brought into the city from a point outside the city boundary, and can only be carried from the city to a point beyond the city boundary.

(2) That all stage carriages shall commence the outward journey from the city from the appropriate stances set apart therefor, and shall proceed from the stances and return to the stances by the route set forth in the certificate.

On March 25 the Magistrates held a conference with the proprietors to consider the whole question of licensing, stances and routes.

Mr. T. Muir Wilson, representing the Scottish Motor Traction Co., the Glasgow General Omnibus Company, and other companies, stated that they viewed the conditions with alarm. The Act of 1929 had placed private owners in a much worse position. The city traffic would be practically for the Corporation omnibuses. He had advised his clients that in making that condition, the Court was acting *ultra vires*. That day the Corporation were promoting a Bill in which they sought a monopoly within the city, and certain monopoly rights outside the city. He suggested that the Court should scrap Condition 1, and wait until Parliament decided whether the Corporation was entitled to a monopoly traffic, or otherwise.

The L.M.S. Railway Company, said their agent, had power to run omnibuses in any district to which their system had access, and the condition in the new regulations that they should not be entitled to use their own station (St. Enoch's) with their omnibuses was preposterous. Such a proposal went right in the teeth of the Act of 1928, which granted omnibus powers to the railways. Once the railway company had started an omnibus service they would not withdraw it ; if they did they were liable to a fine of £5 per day.

The chairman announced that the questions raised would receive attention, with a view to an amicable settlement.

Digitized by Google

OMNIBUS AND COACH SECTION

KIRKSTONE PASS TEST FOR OVERSEAS VULCAN.

LAKE DISTRICT TOUR ON SIX INCHES OF SNOW.

A " Duke " four-cylinder 20-seat omnibus, one of the light models manufactured by the Vulcan Motor and Engineering Co., Ltd., of Southport, was recently tested over the Kirkstone Pass before being shipped to China. The vehicle is one of a fourth repeat order by the Hong Kong and Shanghai Hotel Co., which operates in public service a fleet of two types of Vulcan omnibuses.

Leaving Southport at 10.43 a.m., loaded with ballast to the weight of a full load of passengers, the " Duke " reached Kendal at 1 p.m., and after an interval proceeded to Shap, which it climbed very well, mostly on top and third gear. A strong head wind from Kendal served to show the vehicle's excellent performance. At the top of Shap the radiator water had a temperature of 178 deg. F., the climb from Kendal having taken twenty-five minutes. Leaving Shap the omnibus reached Pooley Bridge at 3.15 p.m. and traversed the narrow road which winds along by Ullswater to Patterdale, and here it showed what a good top-gear performance it could give, the engine picking up well and accelerating quickly from very slow speeds.

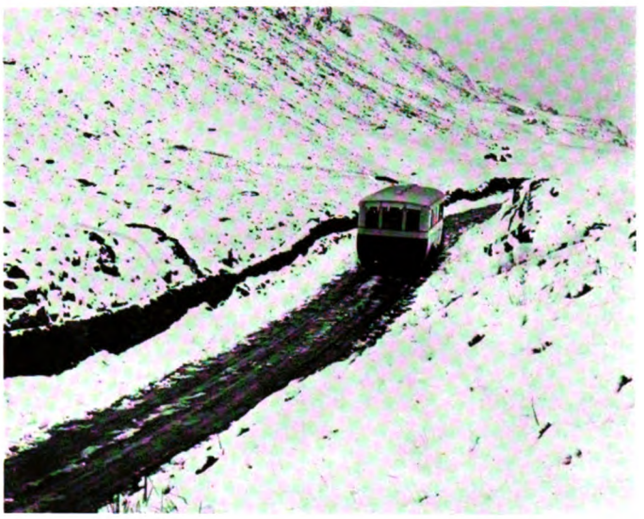
Vulcan "Duke" Omnibus Ascending Kirkstone Pass in Rough Weather.

Leaving Patterdale the climb up Kirkstone began. The roads were in very poor condition and snow lay six inches deep in most parts of the pass. Harter Fell, Ill Bell and Fairfield could be seen with their peaks covered in snow. During the climb a strong tail wind was blowing, and this did anything but help to keep the engine cool. The omnibus pulled remarkably well for the whole of the climb, and when the 1 in 4 part of the gradient was reached and first gear had to be engaged, there was plenty of reserve power. The time taken to climb the pass was twelve minutes, during which several photographs were taken. At the top the vehicle was stopped for a few minutes for further photographs, and then the run was resumed through Troutbeck to Windermere, which was reached at 4.45 p.m. At Kendal a halt was made for tea and a further examination of the omnibus.

As little traffic had been met with in the Lake District, it was possible to test to the full the engine's capabilities. On the level it had shown a very good turn of speed, and though it had never been opened out to its maximum speed, 45 M.P.H. was reached and held with ease. All hills had been taken easily and only once—at the top of Kirkstone—had first gear to be used. The steering was delightful on all conditions of road surface. All gears were easy to engage, and owing to all the gears and shafts being ground the gear-box was exceptionally quiet. The brakes, too, were excellent, and on the few occasions when it was necessary to apply them full on, the vehicle stopped smoothly and without jar in a surprisingly short distance. The steering lock was wide enough to take the most difficult corners with ease, whilst in towns the vehicle was as easy to manage as a touring car. The engine showed little or no signs of vibration and pulled excellently.

Leaving Kendal at 5.55, the omnibus maintained a steady average of 30 M.P.H. The time taken from Kendal to the works, including the stop at Tarleton, was two hours twenty minutes, three minutes more than on the outward run. For the last two hours there was darkness, but the excellent beam from the lamps rendered travelling easy.

At the works the oil level was tested, and it was found that only half-a-pint had been used on the run of 182 miles. The petrol consumption was just over 10 M.P.G., which is very good considering that such climbs as Kirkstone and Shap had been made and an average speed of 30 M.P.H. maintained where possible, and also taking into account the general stiffness of the new vehicle. The body, which has been designed to meet Overseas conditions, is exceptionally roomy and the seating arrangement well thought out. Both interior and exterior are finished in a way that maintains the excellence which is characteristic of Vulcan products.



After a Snow-fall in Kirkstone Pass.

The makers claim that for sparsely-populated districts, where a larger omnibus could only be run at a loss, the " Duke " is an ideal vehicle, easy to maintain, economical to run, and putting up an excellent performance. It has a four-cylinder engine with a bore and stroke of 100 mm. by 130 mm., the cubic capacity of which is 4,084 C.C., the Treasury rating 24.8 H.P. and developing 49 B.H.P. at 2,000 R.P.M. A four-speed gear-box is provided as a separate unit.

IRISH FREE STATE OMNIBUS STATISTICS.

Returns issued by the Irish Free State Government show that omnibus services ran 23,126,000 miles in 1929, and carried 47,458,000 passengers. Approximately 4,500 miles of road were traversed. The number of passengers increased by 17,000,000. The gross receipts totalled £807,367.

In Dublin and suburbs omnibuses ran 10,310,000 miles and the receipts from 34,662,000 passengers totalled £338,327. Services crossing the border of Northern Ireland operated 1,302,000 miles and carried 655,000 passengers.

In December last the number of omnibus owners operating in the Free State was 146, their services running on 4,506 miles of road.

The police of the Free State during 1929 operated a scheme for the supervision of public service vehicles. Control points were established on some parts of each route every day, and the result was that 5,086 prosecutions were instituted. These comprised 2,533 cases of excessive speed, 1,693 cases of overcrowding, and 321 dangerous driving charges.

Digitized by Google

OMNIBUS AND COACH SECTION

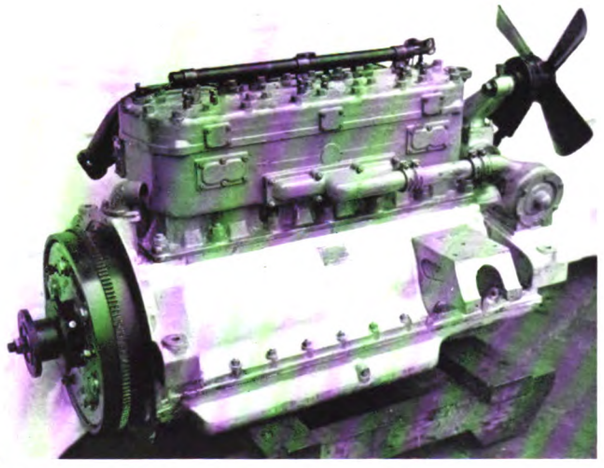
THE KARRIER SIX-CYLINDER ENGINE.

NEW POWER UNIT FOR "CHASER" AND "CLIPPER" PASSENGER VEHICLES.

Designed generally on information gained from operators over a considerable period of service, the new Karrier six-cylinder engine (bore 100 mm., stroke 140 mm.) has an R.A.C. rating of 37.2 H.P. For some months it has been fitted to the "Chaser" and "Clipper" passenger chassis. Petrol consumption is 8 M.P.G.; oil 1,200 M.P.G. In service for a long period on the road the fuel consumption has proved to be 60 ton-miles per gallon, against a tractive resistance of 75 lb. per ton, results which were obtained on a six-wheel vehicle of the "Clipper" type. When fully laden the maximum speed has reached 62 M.P.H. The brake horse-power at 1,200 R.P.M. reached the extremely high effective pressure of 118.2. A power output diagram shows an extremely flat torque curve, namely 315 ft. lbs. at 1,050 R.P.M., and a fall of only 20 ft. lb. approximately at 2,050 R.P.M., which is sufficient to ensure a top gear performance of outstanding merit. Rarely is it found that an engine loses so small an amount of torque during so wide a range of revolutions. On bench test the engine exhibited remarkable characteristics, giving a power and torque curve from low speed range to more than 2,600 R.P.M. Incidentally, 4,000 R.P.M. have been registered.

A Whatmough type anti-turbulent cylinder-head has been adopted as standard, and in consequence a 5.5 to 1 compression ratio is utilised, with a resultant improvement in fuel consumption. The functioning of the Whatmough head is based on controlled or directional flow, as opposed to turbulence, and the whole induction system has been "flowed" as a means of obviating any obstructions in the passage to the cylinder head. Sparking plugs are situated immediately above the exhaust valve and the plug bosses are water-cooled in the proportions required for so hot a position.

The robust proportions of the crank-case conduce to the smooth operation of the engine. The crank-case is split well below the crank centre line and is ribbed internally with large tee-section ribs, both laterally and longitudinally. Torsional stresses are easily



Karrier Engine with Anti-turbulent cylinder head.

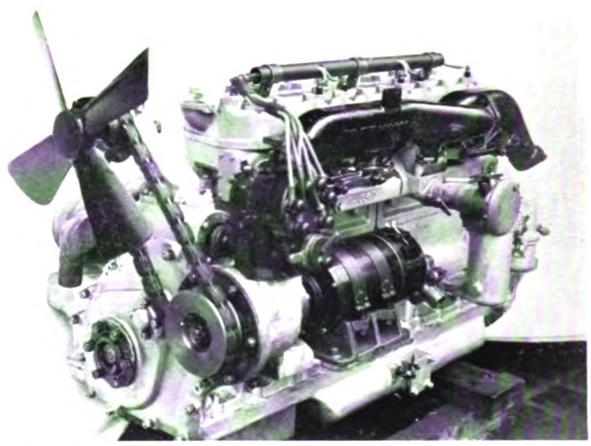
absorbed, and bending strain is eliminated. The oil sump has a capacity of four gallons, a feature which assists in maintaining a cool circulation of lubricant by means of the gear-type oil pump located at the front end of the engine. Suction is taken through a large diameter pipe which extends to the rear of the sump, with a result that gradients, either incline or decline, do not starve the bearings of oil. A frictional type vibration damper, mounted at the front end of the nickel-chrome steel crankshaft, absorbs any torsional vibrations which may occur.

The crankshaft and connecting rods have specially interesting features. Four main bearings, which have a combined projected area of 35 sq. in., form the foundation for low bearing loads. They are $2\frac{3}{4}$ in. diameter, and all the throws are drilled eccentrically, thereby reducing centrifugal loads on the crank-case bearings. Pressure feed lubrication is employed throughout.

The design of the big-end bearing of the steel connecting rod has received special attention. With a diameter of $2\frac{3}{8}$ in., the rigidity of the connecting rod end is unquestionable.

A gear-driven camshaft of Ubas steel forms the link between rotational movement and valve gear, the tappets being of composite type with chilled cast-iron heads and nickel steel shanks. The bronze camshaft wheel is mounted on a steel centre of robust dimensions in order to withstand more safely the stresses to which it is subject. To obviate leakage, special oil glands are fitted to the timing case-cover, removal of which leaves the wheel undisturbed.

Ample crank-case breathing area is provided in order to reduce internal pressures—which possibility is one of the remote causes of excessive oil consumption—and all fumes are conveyed well outside the chassis frame. The lubrication system has been deeply studied.



Near side of Karrier Six-cylinder power unit.

A minimum oil pressure of 20 lb. has been fixed, the oil pump having a capacity of five gallons per minute at 2,000 R.P.M.

By reason of its accessories being mounted on the near-side, accessibility is in no way affected when the engine is used in either a forward or normal controlled vehicle. A silencer which suits the engine has been designed. No back pressure or loss of power is experienced with this component, its position in the exhaust pipe-line having been decided in conjunction with its capacity and baffling arrangements.

COACH, OMNIBUS AND TRAMCAR SEATING.

THE LAMPLUGH SPRING SEATS.

It is of interest to note that Lamplugh spring seats were fitted to the new light-weight bogie tramcar of the Birmingham Corporation and Omnibus Department (described and illustrated in our issue of January 16), because of the satisfaction which has been given by Lamplugh seats in other cars. As many as 250 of the Birmingham cars are so fitted. Lamplugh spring seats are also in wide use elsewhere, and their merits are particularly appreciated by passengers on coaches and omnibuses. The programme of improvements by the East Kent Road Car Co. for the present year includes an order for seventy of their coaches and omnibuses to be fitted with Lamplugh seats. Readers who visited the International Motor Transport Exhibition at Olympia last November may recall that these seats formed a notable exhibit. They are made of curved springs of vanadium chrome steel, which has, after much experiment, been found to retain its flexibility and shape. The seats are in all sizes and in various degrees of softness. For instance, the coach seats for long-distance work are softer than those of a service omnibus, and the seats are stiffer than the backs. At the extreme edge of each seat a second spring is fitted to prevent sagging.

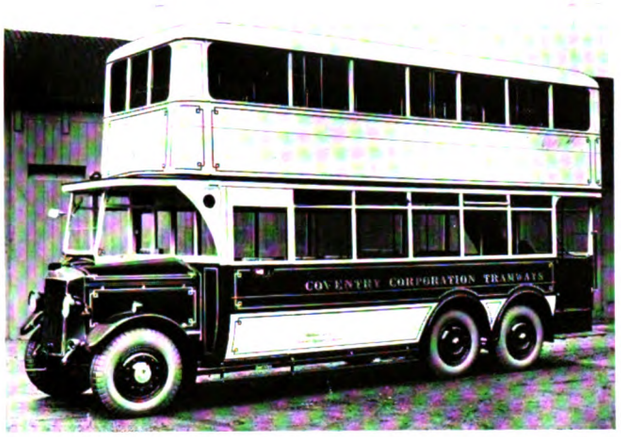
PROPOSED JOINT OMNIBUS PURCHASE.—Bury General Purposes Committee has recommended the Council to purchase in conjunction with the Lancashire United Transport and Power Company the omnibus undertaking of William Lees, Ltd., of Radcliffe.

Digitized by Google

OMNIBUS AND COACH SECTION

MAUDSLAY "MAGNA" SIX-WHEELER FOR COVENTRY.

A new production by the Maudslay Motor Co., Ltd., of Coventry, has for some little time been in use by the Tramways and Motors Department of the company's home city. It is the "Magna" rigid-frame six-wheel chassis carrying a double-deck body, also by the Maudslay Company. The seating capacity of this type is 60-66 passengers.



Maudslay Six-Wheeler for Coventry Corporation.

Reference to the illustration on this page will show that the vehicle has been provided with a special form of emergency door at the forward end of the lower deck. This provision is becoming customary in double-deck vehicles with an all-enclosed platform and staircase.

The power unit of this attractive and smooth riding conveyance has six-cylinders, having 110 mm. bore and 130 mm. stroke. The R.A.C. rating is 45 H.P. and the maximum output reaches 120 B.H.P. The chassis is designed for forward control, and the frame is the low-loading type. Two underslung worm-type rear axles provide the final drive, these being each enclosed in the Maudslay double-banjo casing. The fully floating axle shafts can be withdrawn without disturbing the axle assembly. All of the six wheels are braked, the pedal brake acting on the six and being servo-assisted. Retardation of the bogie wheels is by hand brake.

LEYLAND "LION" SALOON OMNIBUS.

The United Counties and Road Transport Company has lately placed in service the LT1 type "Lion" saloon omnibus shown in the subjoined illustrations.

windscreen. Economy, durability and ease of maintenance are claimed as outstanding qualities. The 28.9–43.5 H.P. engine is powerful and flexible enough for town service, yet economical to run.

The machine is one of an order for ten, all of the rear-entrance 32-seat type. The body is comfortably upholstered, the seats being covered in brown antique hide. Ashtrays and strikers are fitted to each seat, and in the front bulk-head there is a mirror. Luggage rails are fixed on the roof, and patent hinged steps in the rear panel take the place of the less attractive projecting plates. The vehicle is neatly finished in dark blue and white.

THORNYCROFTS FOR STALYBRIDGE BOARD.

The subjoined illustration shows the type of omnibus which the Stalybridge, Hyde, Mosley and Dukinfield Tramways and Electricity Board has made standard in its wide district. These 32-seaters form part of a twelfth repeat order for twelve chassis given to John I. Thornycroft & Co., Ltd., Smith Square, S.W.1. It was in 1925 that the Board began operating a fleet of 26-seat Thornycroft omnibuses, and each successive year repeat orders have been given. Including the recent order the Board has over seventy Thornycroft vehicles, ranging from 20 to 32-passenger capacity.

Thornycroft Single-Deck Omnibus at Stalybridge.

Leyland "Lion" Saloon Omnibus—United Counties & Road Transport Company.

This low-loading vehicle is the product of Leyland Motors, Ltd., and the 1930 example differs somewhat from earlier models, its appearance being improved by the lower loading line and the sloping

Digitized by Google

OMNIBUS AND COACH SECTION

TILLING-STEVENS "EXPRESS" CHASSIS.

IN USE FOR A MANCHESTER-LONDON SERVICE.

The accompanying photograph shows a luxuriously appointed ong-distance coach operated between Manchester and London by Fingland's Hire Cars, Ltd., of Manchester. The chassis is the well-known 29–65 H.P. "Express," which is manufactured by Tilling-Stevens Motors, Ltd., Maidstone, and is in extensive use both for long-distance and general omnibus service. A number of these machines have been supplied to Messrs. Fingland.

This forward steering chassis is fitted with an enclosed and comfortable cab for the driver. It has a wheelbase of 16 ft. and its low load line frame has led to its extensive adoption by municipal authorities, who have also noted its low petrol and oil consumption. Other well-appreciated merits are the simplicity and accessibility of all units, and the small number of points requiring lubrication.

Accommodation is provided for 26 passengers, the well sprung and capacious seats having headrests and being upholstered in moquette. On the near side of the rear end there is a lavatory, and on the opposite side there is a luggage compartment. The body was built by Mr. H. V. Burlingham, of Blackpool.

Tilling-Stevens 29-65 h.p. "Express" for Long-Distance Work.

TESTING CROSSLEY LIGHT SIX-WHEELERS.

The exacting tests undergone by the light rigid six-wheel chassis, which is largely supplied by Crossley Motors, Ltd., of Gorton, to the War Department and to users abroad, is indicated by the accompanying illustrations.

A Crossley Six-Wheeler under Test.

For the testing a stretch of moorland at Hayfield, Derbyshire, is used. This area is ideal for the purpose, as it includes deep holes, ditches, hillocks, and a sloping side of 1 in 4. The chassis shown in the photograph is one of a number ordered by the Canadian Government and the War Office. It has a 20–60 H.P. engine.

Climbing out of a deep hole.

SOUTHEND CORPORATION is reported to have rejected a proposed agreement with the L.M.S. Railway for omnibus services outside the borough.

A TRAFFIC-SHARING AGREEMENT has been arrived at at Hastings. The Tramways Company is to receive fifty per cent. and the omnibus companies will share the remaining fifty per cent.

Digitized by Google

OMNIBUS AND COACH SECTION

CROSSLEY DOUBLE DECKERS AT MANCHESTER.

The Manchester Corporation Tramways Department has received several of the double-deck omnibuses ordered from Crossley Motors, Ltd., for replacing the single-deck tramcars on the worn-out circular route (No. 53). Both chassis and bodies are the products of the Crossley Works at Gorton, and they have been so designed that the omnibuses pass under the low railway bridges that span the road in several places. The overall height of the vehicle is just under 13 ft. This type has been made a standardised vehicle by the company, who have given it the title of the "Low-bridge" double-decker.

Fifty seated passengers are carried in surroundings of great comfort, and, as will be observed from the appended illustrations, the exterior is attractive. Another notable fact is that the system of springing combined with balloon tyres (twins at rear) serves to render road surface inequalities of little account. The upholstery is carried out in maroon antique leather, and the fittings are chromium plated. The seats are commodious, giving plenty of leg room, and with the exception of six in the lower saloon all the passengers will face forwards. Seats in the upper saloon are arranged in rows of three, with a gangway along the off side from the top of the staircase, which is enclosed on the off side and at the rear.

The power unit, which has already been fully described in this journal, has a Treasury rating of 38.4 H.P., and it develops up to 110 H.P. Four-wheel action is a feature of the foot brake, and its application by the driver is servo-assisted. The hand brake operates on the rear wheels.

Crossley Double-Deck Omnibus— Manchester Corporation.

SUBSIDIES FOR MOTOR VEHICLES.

The War Office has invited applications to fill vacancies for its scheme for subsidising motor vehicles. Vehicles eligible for the subsidy are of the rigid-framed six-wheel type, built to the War Department's chassis specification. They are equipped with pneumatic tyres and are of the following makes: Albion, SK31; Crossley, LGL3; Guy, BAX; Karrier, SO6, RM6, and FM6; Leyland, Terrier; Thornycroft, A3 and A5. The subsidy agreement gives the War Office the right to purchase the vehicle if it is required during a national emergency. The subsidy is £120 payable half-yearly in advance by six instalments.

Replying to a question in the House of Commons, the Secretary for War stated that the scheme was for the enrolment of 1,000 vehicles. At present there were 989 vehicles enrolled. The object of the subsidy was to save the heavy expenditure that would be necessary for maintaining a reserve of vehicles for an emergency.

THE WEIGHT OF DOUBLE-DECK OMNIBUSES.

MAXIMUM TO BE INCREASED TO 9½ TONS.

Success has attended the representations made to the Ministry of Transport in favour of an increase of half-a-ton to the maximum weight of 9 tons permitted for double-deck omnibuses. During the second week in March the Minister of Transport met representatives of municipal omnibus undertakings and the manufacturers, and announced that the extra 10 cwt. would be granted. Mr. Morrison mentioned that the chief factors which influenced his decision were the development of the six-cylinder engine and the pneumatic tyre.

COMMERCIAL VEHICLE PRODUCTION IN 1929.—The Society of Motor Manufacturers and Traders report that in 1929 commercial vehicles to the number of 57,576 were constructed in British factories, as compared with 46,525 in the preceding year. The value of motor vehicle exports increased by about £1,300,000, while imports showed a decrease of £400,000.

EMERGENCY EXITS FOR DOUBLE-DECKERS.

An emergency door is provided to the lower saloon of the covered-top double-deck omnibus bodies which Short Bros. (Rochester and Bedford), Ltd., are building on Leyland "Titan" chassis for Manchester Corporation. This exit is a wide one and is situated on the off-side immediately behind the driver's compartment. On the door being opened the skirt panel drops and forms a step.

Two emergency exits, one from the lower and the other from the top saloon, are included in the bodies which are being constructed for a large number of Leyland "Titan" chassis by F. D. Cowieson & Co., for Glasgow Corporation Transport Department. The lower deck emergency exit comprises a wide door behind the driver's cab, and it can be opened from inside or from the street level outside. From the upper deck the emergency exit is through a window and part of the panel that open outwards above the driver's cab. The action of opening the window and panel releases folding steps which reach from the top deck floor to the off-side front mudguard.

GERMAN VISITORS INSPECT TROLLEY OMNIBUSES.

A delegation from Germany, comprising twenty-three transport officials and representatives of engineering firms, recently visited several towns in this country to inspect trolley omnibus systems. Dr. Goossens was at the head of the delegation, which included Dr. Hine, of the Ministry of Transport and Communications.

The places visited were Nottingham, Chesterfield, Rotherham, Mexborough, Doncaster and Bradford, and in several cities or towns where the visits were timely the delegation were entertained at luncheon by the chief magistrate. At Doncaster one of the latest Karrier-Clough six-wheel double-deck omnibuses was utilised for a tour of the Race-course, Car House Road and Hyde Park routes. The Doncaster system was of special interest, as it represents the latest tramway undertaking in this country to be converted to trolley omnibus traction.

Digitized by Google

OMNIBUS AND COACH SECTION

SHOOTING AND PHOTOGRAPHY FROM A CAR.

UNIQUE CROSSLEY VEHICLE WITH CAMOUFLAGE FINISH.

The Maharajah of Bahawalpur has taken delivery in India of one of the most interesting sports motor vehicles yet constructed. It is a Crossley six-wheel chassis mounted with coach work of unique design. The distinctive features of the six-wheel chassis by Crossley Motors, Ltd., of Manchester, are well known, as a vehicle of this type was recently delivered to the King for his shooting and inspection tours.

The engine is the four-cylinder Crossley, with a rating of 19 h.p. In addition to a normal gear box providing four forward speeds and a reverse, there is an auxiliary gear set giving an extra low range of four speeds and reverse, for use under extreme conditions. In its other principal features the chassis is identical with the one delivered to the King, and others supplied to the India Office, except that a reserve petrol tank is incorporated, attached to the nearside chassis member. This chassis is particularly adapted for big game hunting and similar expeditions for which the Maharajah requires it.

A Novel Crossley Vehicle Designed for Shooting and Photography.

The body has been constructed by Barker & Co. (Coachbuilders), Ltd., and is of original design. It is of an enclosed type. The main coachwork is framed in ash and panelled in aluminium. The finish is in mottled khaki, and there are no plated or bright parts. This finish was adopted to render the vehicle as little noticeable as possible against backgrounds of cactus, undergrowth, etc. The interior three-ply walls of the body are varnished. An extension of the main frame members of the chassis permits the fitting of a saloon providing ample space for 12 persons. The body does not overhang the back of the chassis. There are long seats on each side of the interior. Under each seat is a large locker, and on top of each is fitted a folding mattress 2 feet in width. There are two small windows on each side of the main body, in addition to the large windows in the sides of the driver's compartment. A small window is also fitted in the rear door, and one in the partition dividing the driver's compartment from the saloon.

All the windows are of a special double type, consisting of a glass window and a wire mesh. Behind such special protection the occupants of the saloon may sleep without any fear of snakes or other tropical "visitors." The windows in the sides of the saloon are fixed, but the other windows, both those of glass and of wire mesh, can be mechanically opened either together or independently.

Inside the body at the rear are two cupboards for wardrobe and food. In one cupboard there is a very large battery to supply the extra generous lighting system. The lighting arrangements are of particular interest. In addition to abundant illumination, there are four special spot lights, intended to make night shooting or photography from the car a practicable proposition. A large searchlight is mounted in front of the radiator, two powerful spot lights are on top of the driver's canopy, and there is a similar lamp in the rear door. Each of these lights is on a universal joint mounting, and can be moved by means of Bowden control or levers from the interior of the car.

Racks are provided for 12 rifles. In order that it may be possible to shoot from the driving compartment, the windscreen of unsplinterable glass is made to lower outwards. Two towing hooks are bolted to the rear of the side members of the chassis inside the body. These can be used when the rear door is opened.

The Maharajah is using the car in connection with the photography of big game in their natural haunts as well as for hunting. To enable the vehicle to penetrate practically to any spot where there is room for it, steel endless-chain tracks for fitting over the driving bogies are carried. By merely extending them upon the ground and driving the bogie wheels on to them the tracks are quickly fitted.

CARDIFF AND INTER-TOWN SERVICES.

SELECT COMMITTEE REFUSES POWERS, BUT GIVES PROTECTION TO THE TRAMWAYS.

A Select Committee of the House of Commons, presided over by Mr. T. Cape, has considered the Bill promoted by Cardiff Corporation for powers to make inter-working agreements for omnibuses and to protect tramway routes.

Mr. W. Forbes, general manager of the Corporation tramways gave evidence that so far the three omnibus services operating outside the city had worked at a slight loss. Licences to the number of 106 had been issued to omnibus owners over routes which were adequately served by the tramways. The monopoly clause in the Bill extended to the tramway routes only. Cardiff and Merthyr Tydfil Corporations desired, under Clause 45, to make an inter-running arrangement, although they were 24 miles apart

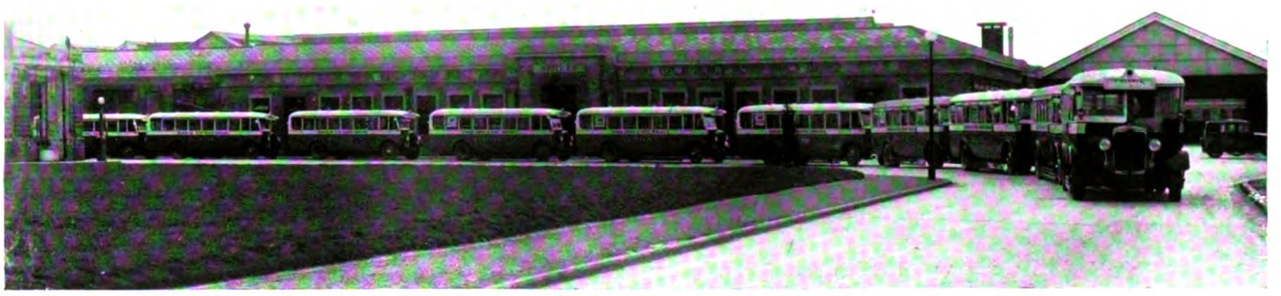
Mr. Wrottesley, K.C., spoke in opposition to the latter clause and urged that adequate services were already provided outside the city by private operators.

The Committee by a majority deleted Clause 45. Clause 43 which restricts the running of omnibuses in competition with the Corporation tramways, was sanctioned.

Digitized by Google

OMNIBUS AND COACH SECTION

A Party of South African Railway Officers at the Basingstoke Works of John I. Thornycroft & Co., Ltd.
Fifth from the left is Sir John Thornycroft, K.B.C., who conducted the Party on a Tour of Inspection.



A Group of A.E.C. Four-Wheel Omnibuses for the London and North Eastern Railway.

The last of an order for 48 omnibuses of the A.E.C. "Reliance" six-cylinder 95 h.p. type for the London and North Eastern Railway was completed a few weeks ago, and in the illustration ten of these vehicles are seen leaving the works of the Associated Equipment Co., Ltd. at Southall. The vehicles are painted in the standard colours of the Eastern Express Motors Ltd., an operating company which was acquired by the railway company some time ago.

The First 14 of the 75 A.E.C. 95 H.P. Regent Double Deck Omnibuses Ordered by Birmingham Corporation.

Digitized by Google

OMNIBUS AND COACH SECTION

OMNIBUS AND COACH SERVICES.

MUNICIPAL.

ONE-MAN OPERATED OMNIBUSES AT BIRMINGHAM.—The service of tramcars on the Bolton Road route has been discontinued and replaced by one-man-operated single-deck omnibuses.

BELFAST CORPORATION SCHEME.—Four new omnibus routes are being inaugurated by Belfast Tramways Committee. An inner and outer circle are to be provided, and the services to all districts will be linked up by cross-town routes.

PROPOSED JOINT STATION.—The London and North-Eastern Railway, having suggested that an omnibus station should be provided jointly by Hull Corporation and the company, the City Council has directed the city engineer to prepare a draft scheme and estimates.

OMNIBUSES BRING INCREASED TRAFFIC.—Councillor H. Johns, chairman of Cardiff Tramways Committee, has stated that in a week's operation of the Cathays route with ten omnibuses in place of thirteen tramcars, the mileage increased by 27 per cent., the passengers by 22 per cent., and the revenue by 29 per cent.

SUGGESTED JOINT PARCEL SERVICE.—Bolton and District Chamber of Commerce has asked the Tramways Committee to consider the possibility of granting facilities for the transit of small packages on omnibus routes on which they operate a joint service with other municipalities. The matter has been referred to the general manager.

SOUTHEND AND OUTSIDE POWERS.—In a report on the Southend Corporation Bill the Parliamentary Committee of Essex County Council state that the Road Traffic Bill will render unnecessary that part of the Corporation Bill which asks for powers to run omnibuses outside of the borough. The County Council has lodged an objection to that part of the Bill.

EMERGENCY DOORS OF SINGLE-DECK OMNIBUSES.—The Minister of Transport has informed Bournemouth Tramways Committee that emergency rear or off-side doors must be provided for single-deck omnibuses, irrespective of the number of near-side doors. The omnibuses on order for the express service of the department are to be provided with the additional door at a cost of £7 10s. per vehicle.

LONG-DISTANCE FARES IN GLASGOW—The experiment of reducing the long-distance omnibus fares at Glasgow attracted 100,000 more passengers up to the week ended March 12th, without any reduction in the number of travellers by tramcar on the same routes. It is believed that the extra passengers were obtained from privately-owned omnibuses and from people who travelled home for their mid-day meal.

DISPUTE BETWEEN MUNICIPALITIES.—Accrington Corporation is opposing the Burnley Corporation Bill, in which powers are sought to effect working arrangements with any local authority or person for the working of omnibus services within a radius of twenty miles. The ground of complaint alleges that Burnley has shown no willingness to enter into a working agreement under powers possessed by the two authorities.

BIRMINGHAM REPAIR WORKS.—The Tramways Committee of Birmingham Corporation reports the completion of a new omnibus repair depot in Tyburn Road. The premises have sufficient accommodation to enable the department to deal for many years with the steadily-increasing number of omnibuses under the control of the Committee. These works are stated to be the most up-to-date of their kind in the country.

SOLUTION OF A BRIDGE PROBLEM.—To enable Warrington Corporation omnibuses to pass under the Lodge Lane bridge, Mr. J. Telfer, the general manager of the transport department, is reducing the height of the upper decks by two inches when the vehicles are brought in for repairs. The question whether the road should be lowered or the bridge raised has been debated on several occasions by the Council.

MIDDLESBROUGH-STOCKTON AGREEMENT.—Middlesbrough Corporation has confirmed an agreement with Stockton Council for the tramways from North Ormesby to Norton to cease operation two years hence. The arrangement empowers Stockton to run omnibuses into Middlesbrough and vice versa, Middlesbrough also having authority to run omnibuses along the north bank to link up with the Transporter bridge.

LEICESTER NOT TO BUILD BODIES.—A Select Committee of the House of Lords, on March 26, struck out a clause of the Leicester Corporation Bill under which power was sought to construct bodies for omnibuses and trolley vehicles. The remainder of the Bill providing for the substitution of trolley omnibuses for tramways on any route within the city, and for further powers in reference to the tramways undertaking, was ordered for report.

NEWCASTLE DIFFICULTIES REMOVED.—As the result of a conference of representatives of Newcastle Corporation and of omnibus operators, the partly-completed station in Marlborough Crescent is to be completed by the City Council. The municipal and private omnibus owners have agreed to use the station instead of going to various other places. Under the new arrangement over-lapping of certain services will be avoided, and congestion in the vicinity of the central railway station will be lessened.

COMPANY.

BRADFORD SPARE LICENCES.—The Watch Committee has fixed at 25 per cent. the spare omnibuses to be used by any person or company licensed in the city.

ANOTHER GARAGE FOR NEWCASTLE.—United Automobile Services, Ltd., propose to build a garage to accommodate nearly 200 omnibuses in Jesmond Road, Newcastle.

TRANSFER OF MANCHESTER LICENCES.—The Watch Committee has transferred to the L.M.S. and L.N.E. Railways the licences hitherto held by Underwood Express Services, Ltd.

NEW GARAGE FOR TORQUAY.—In order to erect a garage to accommodate two hundred omnibuses the Devon General Omnibus Co. has purchased a site on the Newton Abbot Road, Torquay.

NEW ROLLING STOCK FOR THE DEVON "GENERAL."—New coaches and omnibuses to the value of £42,000 have been ordered for delivery during the current year for extensions of services and for replacements.

IRISH SOUTHERN OMNIBUS SERVICES.—Southern Motorways, Ltd., have amalgamated with the Irish Motor Omnibus Co. and Messrs. W. A. and R. G. Swanton, principals of the Southern Motorways, will control all road services in the Cork area.

ANOTHER DIESEL-ENGINE OMNIBUS.—An omnibus chassis fitted with a Diesel engine is being operated by the Barton Transport, Ltd., of Beeston, Notts. Barton Bros., Ltd., of Beck Works, Nottingham, made the conversion. The fuel used is crude oil from coal or shale.

L.M.S. ACQUISITION IN IRELAND.—Eleven routes of the Belfast Omnibus Company's undertaking in County Antrim and the County Londonderry area have been acquired by the London, Midland and Scottish Railway. The sale includes vehicles representing 25 per cent. of the fleet.

MINIMUM FARE UPHELD.—The Ministry of Transport has upheld the refusal of Stockton Corporation to grant licences to the United Automobile Services and the Red Wing Omnibus Services on the Stockton-Middlesbrough route unless the companies charged a minimum fare of 6d.

A BOURNEMOUTH STATION.—At Christchurch Road, Lansdowne, a coach station has been opened by Bournemouth Motor Stations, Ltd. Accommodation is provided for fifty coaches. Mr. L. J. Turner is the manager, and the secretary is Mr. G. W. Jackson, of the firm of architects who designed the station.

NEW OMNIBUSES FOR THOMAS TILLING, LTD.—In his remarks from the chair at the annual meeting of Thomas Tilling, Ltd., on March 24, Mr. W. Wolsey said that the replacement of the company's fleets was being taken in hand. It had been decided to adopt an omnibus with a covered top-deck of larger carrying capacity for London.

CRUDE OIL OMNIBUSES FOR LONDON.—The London General Omnibuses propose to operate a considerable number of omnibuses having heavy oil engines of the Diesel type. It is estimated that the fuel cost could be reduced by 75 per cent. by the use of such engines. The company's fuel bill includes 30,000,000 gallons of petrol per annum.

CO-OPERATION AT SOUTH SHIELDS.—Interchange of tickets has been arranged between South Shields Corporation Tramways, the Sunderland and District Omnibus Co., and the Northern General Transport Co. Other new arrangements are a common fare list, a joint time-table, workmen's tickets up to 9.30 a.m., and books of workmen's tickets.

A DURHAM ACQUISITION.—Mr. J. A. Kay, managing director and secretary of the General County Omnibus Co., Durham, has acquired the shares and 37 vehicles of the company. It was afterwards announced that the Northern General Transport Co. is to take a financial interest in the company, and that co-ordination of services is to be effected.

Digitized by Google

OMNIBUS AND COACH SECTION

LONDON "RUSH TRAFFIC" OMNIBUSES.—The London General Omnibus Company has put in service the first batch of fifteen of the "rush-traffic" all-enclosed omnibuses (ST Type) on route 184, between Southall and London Bridge. The new omnibuses, which seat 50 passengers, were described and illustrated in our issue of February 13, 1930.

NEW TASK FOR TILLING-B.A.T.—Mr. S. E. Garcke informed the annual meeting of Tilling & British Automobile Traction, Ltd., that as regards the future, it was proposed that they should join the railway companies in developing undertakings in which Tilling-B.A.T. had acquired an interest, and with which Tilling-B.A.T., up to the present, had had no concern.

NOTTS AND DERBY TROLLEY OMNIBUS POWERS.—Although it was in 1928 that Notts and Derby Traction Co. obtained powers to run omnibuses and to use trolley omnibuses in place of the tramways, no trolley omnibus installation has yet been made. Recently, the company notified Basford Rural Council of their intention to provide trolley omnibuses in the parish of Shipley. Meanwhile, an extensive omnibus service is being worked by the Midland General Omnibus Co., an associated undertaking. The tramcars are run only at the busy times.

A MANCHESTER INJUNCTION.—At the instance of Manchester Corporation, an application was made to the Chancery Court on March 14 for an injunction to restrain Mr. J. Sharp from plying for hire with his omnibus without a licence. Defendant is licensed in Eccles, Hazel Grove, near Stockport, and Bramhall, and his defence was that he did not ply for hire in the city as there was no solicitation of passengers. In granting an injunction, Mr. Justice Farwell expressed the opinion that it was plying for hire if a person ran omnibuses regularly on a fixed route at fixed times, stopped at particular places to allow passengers to alight, and had offices where people could buy tickets and get on to the omnibus. The Corporation withdrew a claim for trespass on the highways and causing an obstruction by allowing vehicles to stand there.

LONG-DISTANCE.

NEWCASTLE TO NOTTINGHAM.—Day and night services from Newcastle to Nottingham, via Doncaster, Worksop, and Mansfield, are announced by Hall Brothers, of Newcastle.

ROCHDALE-TORQUAY SERVICE.—Holt Bros. (Rochdale) Ltd. have been granted a licence by Oldham Corporation for a service between Rochdale and Torquay, via Oldham and Bristol.

NEWCASTLE-LONDON SERVICE.—Orange Bros. have removed their head office from Bedlington to Haymarket, Newcastle-on-Tyne. This firm operates day and night services to London.

A NEW LONDON STATION.—George Ewer & Co., Ltd., of Leonard Street, E.C.2, a well-known firm on eastern and southern roads, are building a station at Stamford Hill, on the main road to the north-eastern counties.

TOURS FOR AMERICAN VISITORS.—This summer the Southern General Omnibus Co., an amalgamation of Cornish Buses and H.B. Buses, intend to provide tours for passengers from America landing at Plymouth.

LONDON-LLANDUDNO SERVICE.—All-British Travels, Ltd., of Chester and Birkenhead, on April 14, began a daily service between London and Llandudno, via Chester, Liverpool, Birkenhead, Rhyl and Colwyn Bay. The fares are 20s. single and 35s. return.

TRAFFIC FROM ATLANTIC LINERS.—Rymers, of Liverpool, announce regular coach services for visitors from America to London, Glasgow, Bournemouth and Torquay, and from Southampton to London. A five-day tour from London includes Stratford-on-Avon, the English Lakes, Glasgow, Edinburgh, and York.

INCREASED LONDON-NORTHAMPTON FACILITIES.—From March 31, Midland Motorways (formerly Nightingale) increased their Northampton-London service to three coaches each way. The terminal point in London is the Clapham Road coach station.

OBJECTION TO DOUBLE-DECK BODIES.—Pending the settlement of an objection by the Ministry of Transport to the use of double-deck bodies on the Edinburgh-London service of Thomson's Tours, Ltd., ten additional Daimler single-deck omnibuses have been placed in service. The fare has been reduced to £1 each way.

HULL-NEWCASTLE LICENCE INQUIRY.—At a Ministry of Transport inquiry into Hull Corporation's refusal to grant to Mr. G. Galley a licence for extending his Newcastle-York service to Hull, the chief constable gave evidence that it would be impossible to accommodate any more omnibuses in the city. Evidence was given by a director of the East Yorkshire Motor Co. services that during the North-East Coast Exhibition that company lost slightly on a service between Hull and Newcastle. Except at week-ends there was not a demand for the service now.

SOME RECENT ORDERS.

KARRIER MOTORS, LTD., have an order from South Shields Council for a motor sweeper, sprinkler and washer.

HULL CORPORATION has placed a twelve months' contract for petrol with Russian Oil Products, Ltd., at 1s. 1d. per gallon.

CHRISTOPHER DOBSON, LTD., has ordered 40 pairs of "Golden Glow" headlights from the Equipment and Engineering Co., Ltd.

LEEDS TRAMWAYS COMMITTEE has ordered a Hammond power petrolling plant from the Equipment and Engineering Co., Ltd.

WARRINGTON TRAMWAYS COMMITTEE has ordered a Luchard air compressor for tyre inflation from Equipment and Engineering Co.

PLYMOUTH CORPORATION has accepted the tenders of Russian Oil Products, Ltd., and Glico Petroleum, Ltd., for oils and petrol for twelve months.

PLYMOUTH CORPORATION has purchased a turbine motor fire engine from Dennis Bros., Ltd. A similar purchase has been made by Smethwick Corporaton.

ROCHDALE TRAMWAYS COMMITTEE has ordered a 38-110 H.P. Crossley 50-seat double-deck omnibus. This vehicle is similar to the Crossley vehicles in operation in Manchester and Cardiff, and is of the "Lowbridge" type.

MANCHESTER TRANSPORT COMMITTEE has placed contracts as follow:—Vulcan Motor and Engineering Co. (1909), Ltd. 15 single-deck omnibus bodies; Leyland Motors, Ltd., 15 single-deck chassis; Crossley Motors, Ltd., 15 single-deck chassis.

THE ENGLISH ELECTRIC COMPANY, LTD., has orders for forty double-deck top-covered omnibus bodies for Birmingham Corporation at a cost of about £33,000, and a further order for similar bodies from Newcastle-on-Tyne Corporation.

VULCAN MOTOR AND ENGINEERING CO. (1906), LTD., have orders for 28-seat complete omnibuses and also bodies for Northampton Corporation, fifteen 32-seat omnibus bodies for Manchester Corporation, and a fleet of 51-seat double-deck omnibuses for Southport Corporation.

ROTHERHAM TRANSPORT COMMITTEE has recommended acceptance of the tenders of Charles H. Roe, Ltd., for two bodies for road luxury vehicles to be used in connection with private hire, at £625 each, and of the Bristol Tramways and Carriage Co., Ltd., for the chassis at £715 10s. each.

CROSSLEY MOTORS, LTD., have received from the Race course Betting Control Board a fourth repeat order for four 30/70 H.P. four-cylinder six-wheelers for conveying electrical equipment for use in connection with the Totalisator. The number of Crossley six-wheelers now owned by the Board is thirty.

CROSSLEY MOTORS, LTD. are also supplying a number of their 20–60 H.P. light six-wheel chassis to the Canadian Government and also to the War Office. The illustrations on page 212 show two of these machines undergoing test over rough ground.

PORTSMOUTH TRANSPORT COMMITTEE recommends acceptance of the tender of Michelin Tyre Co., Ltd., for the supply of pneumatic tyres on a mileage basis as follow: 36 in. by 6 ins., 0.336d. per car mile; 38 in. by 7 in., 0.473d. per car mile; 32 in. by 6 in., 0.401d. per car mile; 36 in. by 8 in., 0.727d. per car mile.

BRISTOL TRAMWAYS AND CARRIAGE CO., LTD., have received the following orders for Bristol omnibuses:—Two 26-seat, one-man operated, Stockton Corporation; a "repeat" for four 4-cylinder 4-wheel light passenger chassis, the Merseyside Touring Co.; four 4-cylinder light passenger chassis, Pontypridd Council Tramways.

GUY MOTORS, LTD., have received the following orders:—Northampton Corporation, six 6-wheel double-deck chassis and three 26-seat saloon omnibuses; Great Yarmouth Corporation, five 35-seat saloon omnibuses; Hull Corporation, twelve 6-wheel double-deck chassis; Middlesbrough Corporation, two 32-seat saloon omnibuses.

GUY TROLLEY OMNIBUSES FOR ABROAD.—The latest type of trolley omnibus built by Guy Motors, Ltd., Wolverhampton, is being placed in service in Italy and Belgium. One of the six-wheel type, seating 53 passengers, has lately been added to the Birmingham Corporation fleet. The vehicle was built throughout in the company's works and was delivered to Birmingham under its own power.

BIG ORDER FOR A.E.C. COACHES.—Timpson & Sons, Ltd., of London and several South Coast towns, are adding to their large fleet of coaches and omnibuses ten 21-seat de luxe all-weather coaches and thirty-one 31-seat coaches of the Regal type manufactured by the Associated Equipment Company. The Regal vehicles incorporate the Walman sliding head, which is operated from the driver's seat.

Digitized by Google

OMNIBUS AND COACH SECTION

CONTRACTS FOR "ENGLISH ELECTRIC" BODIES.—Birmingham Corporation has placed a contract with the English Electric Co., Ltd., for forty double-deck top-covered bodies. These will be mounted on A.E.C. "Regent" chassis to seat 58 passengers, and will have safety glass throughout and stainless steel fittings. The value of the contract is £33,000. The English Electric Co. has also an order from Newcastle Corporation for three double-deck, top-covered bodies, each seating 50 passengers. The bodies will be on A.E.C. "Regent" chassis.

THE ASSOCIATED EQUIPMENT CO., LTD., has received the following orders:—Passenger Vehicles: Huddersfield Corporation, four "Regent" double deckers; E. G. Hewett, three "Regal" single deckers; Central Garage Company, "Regal" single decker; G. Burnham, "Regal" single decker; Blackheath Motor Company, "Regal" single decker; Newcastle Corporation, three "Regent" double deckers; Northampton Corporation, "Renown" six-wheeler; Colchester Corporation, three "Regent" double deckers and one "Regal" single decker. Urania Bil, Sweden, has ordered a "Regal" single-deck omnibus.

MOTOR TRAFFIC NOTES.

A FRONT DOOR FOR CABS.—Mr. W. Gordon, of Cape Town, has patented in London a front door entrance to the motor cab. The door is operated by the driver.

HEADROOM IN COACHES.—A notice issued by the Metropolitan Commissioner of Police states that the minimum inside head room of public service vehicles fitted with permanent tops applies also to roofs comprising a combination of the permanent and sliding type.

A PLAN TO RELIEVE CONGESTION.—The chief constable of Swansea has suggested that congestion caused by the provision of omnibus termini might be relieved by the vehicles going straight on to another route instead of remaining on the stands for a return journey.

DIRECTION INDICATORS.—In reply to an inquiry whether the use of a direction indicator could not be made compulsory on all motor vehicles, the Minister of Transport has stated that Clause 30 of the Road Traffic Bill would enable regulations to be made, if thought desirable.

WAKEFIELD'S NEW GEAR OIL.—It was stated in our issue of March 13 that the new gear oil introduced by C. C. Wakefield & Co., Ltd., and known as Castrol Swanshot S, remains fluid at 10 degrees below zero Fahr. This should have read 10 degrees below freezing point, *i.e.*, 20 degrees Fahr.

A LEYLAND HEAVY-OIL ENGINE.—In his remarks as chairman at the annual meeting of Leyland Motors, Ltd., Mr. J. H. Toulmin said that the company's experts had given considerable attention to heavy-oil engines. Several types had been tested and exhaustive experiments were in progress.

TRAFFIC CONTROL AT LUDGATE CIRCUS.—The City of London Corporation has decided to adopt mechanical regulation of traffic at Ludgate Circus junction of Fleet Street, Ludgate Hill, Farringdon Street, and New Bridge Street. The signals will be operated by a constable in a kiosk. At present four constables are required.

PROMOTION OF TRADE BY MOTOR VAN.—The British Lace Curtain Manufacturers' Association has placed on the road a bungalow on a motor chassis to demonstrate the merits of British lace window curtains. The large windows of the bungalow are draped to show how admirably lace curtains can be adopted for the modern type of window.

TRAFFIC CONFERENCE AT BELFAST.—The various traffic interests in Belfast have attended a conference, convened by the Police Committee, for the discussion of matters connected with traffic in the city. Several suggestions were put forward for the consideration of the Police Committee, including a provision of a central station for omnibuses and a park for motor cars.

SIR RALPH WEDGWOOD ON COMPETITION.—Speaking at the annual dinner of Halifax Chamber of Commerce, Sir Ralph Wedgwood, general manager of the L.N.E. Railway, said that competition in its present form was too ruinous to last. The business of the railway companies during the next five years would be co-ordination with the road transport undertakings. What sort of a co-ordinated system was likely to develop he could not say.

A COMPETITION IN CONTAINER DESIGN.—As the result of a suggestion made at the World Transport Congress at Rome in 1928 a competition has been organised for the best standard types of container, open and closed, for the transport of goods by road, rail and water. Particulars of the competition can be obtained from the International Container Competition Committee, International Chamber of Commerce, 38, Cours Albert Ier, Paris.

THE GOODYEAR TYRE FACTORY.—Mr. C. Slusser, vice-president and factory manager of the Goodyear Tyre and Rubber Co., U.S.A., has inspected the progress made by the Goodyear factory at Wolverhampton. Mr. Slusser has expressed himself as being much pleased with the efficiency displayed by the workmen at Wolverhampton, where some 1,500 men are employed. For the past two years night and day shifts have been operating continuously to fill the demand.

WESTINGHOUSE COMPRESSED AIR BRAKE.—In the article on the Westinghouse servo brake, published in our issue of March 13, the sentence beginning "When it is desired to use the Westinghouse brake" should have read as subjoined:—The Westinghouse compressed air-brake can also be adapted to operate on the servo principle in conjunction with, and as an auxiliary to, the mechanically-operated brake system; and the arrangement shown in the sketch is then employed.

NO DANGER IN USING ETHYL PETROL.—The final report of the Departmental Committee on ethyl petrol was issued on April 4 (H.M. Stationery Office, 1s.). The Committee find that there is no danger in using such petrol and that subject to certain precautions there are no reasons for prohibiting its use in this country. One precaution is that the amount of lead tetra-ethyl in the fuel sold for ordinary commercial purposes should not exceed one part in 1,300 parts by volume, or about one in 650 by weight.

THE ULTIMATE TYPE OF OMNIBUS.—Mr. Sydney S. Guy, chairman and managing director of Guy Motors, Ltd., at the annual meeting of the company remarked that the demand for six-wheel passenger vehicles continued to increase. In consequence of the ever-increasing congestion he was satisfied that the six-wheeler would be the ultimate type of the future. In the last six months a number of important undertakings which hitherto had not considered six-wheelers had ordered machines of that type.

NEW L.G.O.C. OMNIBUS DESIGN CHANGED.—The London General Omnibus Company has decided to put no more mirrors in the new omnibuses. An experiment recently tried in the "S.T." type has had the effect of delaying passengers who entered the omnibuses. Certain other modifications will be made, the principal of which will entail the backward extension of the staircase from its present position up the centre of the omnibus, to the door, as in other models. It appears that the unaccustomed position of the stairs in the new vehicle proved a trap for the unwary.

NATIONAL SAFETY WEEK.—From May 19 to 24 a "National Safety Week" is to be held. On the opening day the Lord Mayor of London, at the Mansion House, will present the gold medallions of the Safety First Association to London drivers who have completed ten consecutive years' service without accident. In the evening Lord Brentford will speak at Liverpool, where, the next morning, the Duke of York will open the annual congress of the Safety First Association. The London County Council has decided in future to award 12s. 6d., which approximates to a day's pay, to successful competitors in the annual competition.

SPEED LIMIT PROPOSALS OF THE C.M.U.A.—At the annua meeting of the Commercial Motor Users' Association, held on April 2, the report of the National Council stated that the Road Traffic Bill continued to occupy their attention. A number of the Association's amendments had been accepted by the Government, and further amendments are to be presented. One amendment still to be presented proposes to increase the limits of speed as follows:—Commercial goods and passenger vehicles of less than 2½ tons in weight unladen, if fitted with pneumatic tyres and not drawing a trailer, no limit; commercial goods and passenger vehicles over 2½ tons unladen, if fitted with pneumatic tyres and not drawing a trailer, 35 M.P.H.; other commercial goods and passenger vehicles, 20 M.P.H.

AGENCIES FOR SPECIALITIES.

Electric Railways, Tramways & Motor Buses.

An old-established firm with first-class connections with all Tramway Managers and Engineers is open to consider additional Agencies for any specialities for Electric Railways, Tramways, Motor Buses, etc. Live representation assured.

Write Box 14, TRAMWAY & RAILWAY WORLD, Amberley House, Norfolk Street, London, W.C.

Digitized by Google

THE
Tramway and Railway World
FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.
Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates:

FOR THE UNITED KINGDOM—Twenty-five shillings per annum.

FOR ALL PLACES ABROAD—Twenty-five shillings per annum. Postage to Canada, 6s.: to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS

LONDON, APRIL 19, 1930.

THE RETIREMENT OF MR. J. K. BRUCE.

Deep sympathy will be felt with Mr. J. K. Bruce on his retirement on account of ill-health from the position of general manager of the London County Council Tramways. During his five years' tenure of that office, Mr. Bruce has effected a transformation in the greatest of British tramway undertakings. It is a far cry from the losses of post-war years, due to the high cost of materials and operation combined with increased omnibus competition, to the net surplus of £52,570 of the past financial year. That achievement has been effected in less than five years, and the greatness of the task is indicated by the fact that for two years the sanction of the Treasury had to be obtained for deferring payment of the sinking fund charges. Many men who found their efforts rewarded with so remarkable a change in the financial position of the undertaking might have been tempted to rest on their oars. Mr. Bruce, however, having transformed the undertaking from three points of view, viz., passengers' comfort, speed of the cars and financial results, turned his attention to reducing operating costs and improving the services. The millions of Londoners who travel by car have for over two years in increasing numbers continued to show how greatly they appreciate the swift and comfortable cars which, thanks to the courage of the County Council in taking the advice of Mr. Bruce, have been placed at their service. The results must be very gratifying to the retiring manager, and the industry will congratulate him upon the deserved recognition of his services by the Council. A liberal grant has been made to him in addition to the pension to which he is entitled by virtue of his long service since 1899. The key to Mr. Bruce's successful work is to be found in the fact that at the outset he recognised that the tramway undertaking must be maintained in the highest state of efficiency. A great advance was the fitting of cars with two 60 horse-power motors, which resulted in a marked increase in the average speed. A further result was the withdrawal of the trailers which had proved so serviceable during the war; then came the conversion of the rolling stock to the "Pullman" standard of comfort, the use of car washing machines, and the introduction of improved breakdown lorries, which greatly reduced delays en route. The retiring general manager throughout his period of office has shown a devotion to duty that could not be excelled, and his colleagues will hope that his release from the cares of office will result in such a restoration of health as will enable him to enjoy his well-earned leisure.

THE BUDGET AND MOTOR VEHICLES.

RETENTION OF THE MCKENNA DUTIES.

Contrary to widespread predictions, Mr. Snowden, Chancellor of the Exchequer, did not announce an addition to the petrol tax in the Budget which he introduced on Monday last. Instead, there were reductions in the road licence charges for two classes of motor vehicle, to take effect from July 1 next. Goods vehicles over 2 tons, but not exceeding 2½ tons unladen weight, will pay £35 instead of £40 now charged, with a rebate of 20 per cent. for vehicles fitted entirely with pneumatic tyres. Motor cycles not exceeding 224 lbs. (instead of 200 lbs. as hitherto) will pay £1 10s. The estimated loss to the Exchequer of these concessions is £20,000, and to the Road Fund £50,000 in respect to the goods vehicles and £40,000 for motor cycles.

THE PETROL-ELECTRIC VEHICLE.

As from January 1, 1931, it is proposed to provide that for the purposes of the duties charged on mechanically-propelled vehicles, a vehicle shall not be deemed to be an electrically-propelled vehicle unless the electrical motive power is derived either from a source external to the vehicle or from an electric storage battery which is not connected with any source of power when the vehicle is in motion. This provision, we may point out, is the Treasury's reply to their defeat in the appeal by Tilling-Stevens Motors, Ltd., to the House of Lords.

Adverting to the McKenna duties and the silk duties, the Chancellor stated that they were imposed by his predecessor, and they brought in nearly £10,000,000 a year. He regretted that the financial position which he had inherited would not permit him to repeal these duties in the present Budget, but the pledges of the Government given last year still stood. This pledge was that the duties would go "before this Parliament ends four years hence."

RAIL AND ROAD TRAFFIC CO-ORDINATION.

L.M.S. AND L.N.E.R. PURCHASE INTERESTS IN NINE COUNTIES.

A communication issued by Sir John Jarvis, chairman of the National Omnibus and Transport Co., on April 11 announced that the London Midland and Scottish Railway and the London and North-Eastern Railway had purchased the interests of the National Omnibus and Transport Company in the following counties: Northamptonshire, Bedfordshire, Huntingdonshire, Cambridgeshire, Essex, Suffolk, Middlesex, Hertfordshire, and Buckinghamshire.

A new company—the Eastern National Omnibus Company—has been formed with a capital of £500,000 to operate the services. The chairman will be Sir John Jarvis and the Board will consist of Messrs. W. J. Iden, J. H. Follows, G. F. Thurston, C. J. Selway, H. G. Burford, B. Smith, and H. L. Thornhill.

The object is to co-ordinate and co-operate with the railway companies' services in the interests of the respective companies, and the travelling public. A programme of increased facilities and improved vehicles is in contemplation.

The development follows the formation of the Western National Company and the Southern National Company, in which the Great Western Railway and the Southern Railway are similarly concerned, and the entire area of the companies extends from Clacton on the East to Land's End on the West, Huntingdon and Northampton on the North and Weymouth and Sidmouth on the South (excluding South-East England). The combined capital of the companies is £3,000,000.

On April 14 the L.M.S.R. announced that they had acquired the omnibuses of the Majestic and Empress services which operate from Preston. The services are in course of being merged with those of the Ribble and Rishton and Antley undertakings, in which the Midland Company is financially interested.

Traffic Sharing Instead of Restriction.—At a meeting of the Hastings Town Council on April 9 it was announced that opposition to the Bill of the Hastings and District Tramways Co. would be withdrawn. A clause in the Bill seeking power to restrict competition has been abandoned in consequence of an arrangement which provides for all the local transport concerns to share the traffic in agreed proportions.

Charing Cross Bridge Scheme.—A statement issued on Monday by the Ministry of Transport intimated that in conformity with the wishes of the Select Committee of the House of Commons which is considering the Charing Cross Bridge Bill a meeting had been held that day. It was attended by Sir Percy Simmons, chairman of the Improvements Committee of the London County Council, and Brigadier-General the Hon. Everard Baring and Sir Herbert Walker, representing the Southern Railway. Arrangements were made for various points arising out of the statement by the Select Committee of the House of Commons on April 10 to be investigated.

Digitized by Google

THE ROAD TRAFFIC BILL.

The Standing Committee of the House of Commons which is considering the Road Traffic Bill on Tuesday resumed consideration of Part II, which deals with compulsory third party insurance. Clause 40, requiring that a driver of a motor vehicle shall, on being so required by a police constable, produce his certificate of insurance or of security, was discussed. Mr. Morrison explained that there was a definite obligation upon a driver to carry his certificate, which should be produced if required. If the certificate had been forgotten, five days were allowed the driver to produce it at any police station specified by the police. After discussion, the clause was agreed to.

Clause 12 was also agreed to. This provides that where the company carries on a motor vehicle insurance business the Assurance Act, 1909, shall apply with respect to that business in the same way as it applies to accident insurance business, subject to the modification that the company shall deposit and keep deposited with the Accountant-General the sum of £15,000, whether or not it carries on any other business.

The Committee then began consideration of Part III of the Bill, in which it is proposed to amend the law relating to highways. One clause empowers the Minister of Transport to prepare a Highways Code and to provide that special guidance should be given to the police. Mr. Morrison undertook to consult all the organisations, pedestrian as well as motor, who were concerned and to make any changes in the Code which were considered desirable.

Clause 44, which was under consideration, was agreed to and the House adjourned until April 29.

SUCCESSFUL L.C.C. TRAMWAYS.

The estimates of the London County Council Tramways for the year 1930-31 were submitted at the meeting of the Council on Tuesday. The accounts for the year 1929-30 will, it is hoped, be completed about the end of June. The approximate results for the year ending March 31, 1930, show a net surplus amounting to £52,570 after deducting debt charges. The figures are as follows :—

	1929-30 £
Total receipts, including advertisement rents, etc.	4,413,450
Working expenses, including renewals and special charges	3,638,505
Surplus on Revenue Account	774,945
Deduct :	
Debt Charges £759,120	
Less :	
Excess of income over expenditure on other items (net revenue account) 36,745	
	722,375
Net surplus	52,570

ESTIMATED NET SURPLUS OF £89,411 FOR 1930-31.

For the year 1930-31 it is estimated that the passenger receipts will average 14.91d. a car mile on a car mileage of 69,938,250. The net working expenses, including special charges and renewals, are estimated at 12.191d. a car mile. On the basis of these estimates the anticipated results of the working of the tramways for the financial year ending March 31, 1931, are as follows :—

	£
Total receipts, including advertisement rents, etc.	4,429,300
Gross working expenses, including renewals and special charges ...	3,604,725
Estimated surplus on revenue account	824,575
Deducting debt charges amounting to £773,129, *Less* Excess of income over expenditure on other items (net revenue account) £37,965, there is an estimated net surplus of	89,411

The surplus on working each year since 1926-27 has been as follows : 1926-27, £200,601 ; 1927-28, £522,958 ; 1928-29, £688,957 ; 1929-30, £774,945. During the financial year 1926-27 there was a complete stoppage of the system from May 4 to 13, 1926 inclusive, owing to the General Strike, and this has resulted in a loss to the undertaking of £74,000. The dispute in the mining industry added considerably to the working, and the additional cost of coal is estimated at approximately £152,000.

Considerable economies are reflected in the improvement in the surplus on working, as shown above, and in addition there has been an increase in traffic receipts largely due to the reconditioning of tramcars with transverse seats, etc. On March 31, 1930, 1,438 reconditioned cars were in service and 150 new cars will be put into service during the current financial year.

The Highways Committee state that such a satisfactory condition of affairs could have been achieved only by the whole-hearted co-operation of all grades of staff, and they record their appreciation of the efforts of the staff in securing the improved financial position of the undertaking. With respect to the future, the Highways Committee do not suggest that finality has been reached in economy, and they point out that an important factor is that within the next few years a considerable portion of the short term debt incurred will have been wholly repaid, involving relief in annual debt charges. In five years' time the reduction in these charges will be approximately £207,000, and in ten years' time £440,000.

The Council's system of tramways now has a route length of 166.3 miles, comprising 43 miles of the overhead trolley system and 123.3 miles of underground conduit. These figures include the tramways (eight miles in length) belonging to the Leyton Corporation.

The amount of the debt incurred up to March 31, 1930, was £18,184,907. The net debt, after allowing for debt repaid and sinking fund balances, was £8,364,170. The amount to be voted on capital account for the financial year ending March 31, 1931, is £742,655, the principal items including construction of 150 new cars, the deepening of the tramway subway from the Victoria Embankment to Southampton-row and the reconstruction of single-deck cars, expenditure on new plant at Greenwich Power Station, and construction of new tramways. The following tables give information regarding the working of the tramways for the ten years ended March 31, 1930 :—

PARTICULARS OF WORKING IN RECENT YEARS.

Year ended Mar. 31.	Length of route operated by Council at Mar. 31.	Car miles run.	Average passenger receipts a car mile.	Average net working expenses a car mile.	Total number of passengers carried.	Passenger traffic receipt.
	miles		*d.*	*d.*		£
1921	143.57	57,488,232	19.91	19.81	689,452,036	4,769,477
1922	155.83	59,532,087	20.39	18.29	688,151,316	5,058,065
1923	160.71	63,381,367	18.13	15.01	733,811,367	4,788,347
1924	163.51	64,118,565	16.04	14.13	689,015,086	4,285,761
1925	164.14	68,068,216	14.63	14.08	682,505,733	4,148,923
1926	164.44	68,530,795	14.53	13.56	690,222,969	4,148,998
1927	165.35	67,113,143	14.28	13.69	667,103,489	3,993,601
1928	165.72	69,890,518	14.37	12.70	705,762,261	4,185,550
1929	166.28	70,170,486	14.62	12.38	712,694,996	4,274,010
1930	166.28	70,898,250	14.65	12.14	719,000,000	4,325,000

PAYMENTS OUT OF REVENUE BEFORE ARRIVING AT SURPLUS OR DEFICIENCY IN COLUMN 6.

Year ended Mar. 31.	Rates on permanent way.	Street widenings (debt charges).	Debt charges (excluding widenings given in col. 3).	Maintenance of paving along tramway routes.	Surplus or deficiency.
	£	£	£	£	£
1921	140,831	28,222	562,443	253,000	—590,580
1922	79,871	28,519	619,082	245,000	— 88,757
1923	69,056	29,633	682,510	269,502	+232,327
1924	61,405	30,545	715,452	255,000	—160,222
1925	59,933	30,906	†452,989	240,000	—278,441
1926	60,822	30,456	†465,563	235,000	—114,629
1927	31,191	30,428	†502,985	233,500	—275,159
1928	30,681	30,108	754,983	233,500	—226,210
1929	28,503	29,866	710,505	233,500	— 6,790
1930	27,100	29,928	720,102	233,500	+ 52,570
1931	27,100	29,402	743,727	230,350	+ 89,411

† The lower figures for 1925-27 inclusive are due mainly to the temporary suspension, with the approval of H.M. Treasury, of repayment of debt in respect of certain capital expenditure.

Mr. F. B. Galer, in introducing the estimates, said that this year was the first occasion for some years that the Council was able to look back on a year which showed a profit. The improvement had been largely effected by revised methods of working, and it was mainly due to Mr. Bruce's successful reorganisation that their enormous undertaking, which had been a serious liability, had been converted into a valuable asset. In 1924-25 the gross surplus on working was £193,315, whereas in 1929-30 it had risen to £774,945. The actual reduction in cost of working was £411,199. The improvement in the speed of the cars had resulted in reducing the number in use by 47. Running and maintenance charges had thereby been reduced by £84,700. The reorganisation of repair work had reduced the percentage of spare cars required from 17½ to 10, and in order to run present services it would have been necessary to have had 122 additional cars. If at the end of the year their hopes were realised and there was again a profit, the position of the ratepayers should be seriously considered. Since the year 1920 the rates had provided a total sum of over £1,500,000 in order to meet the deficit on working. The million and a half had been borrowed from the ratepayers without interest, and some return was due to them.

The estimates were adopted.

PERSONAL.

Presentations at Burnley.—At a meeting of the works department of Burnley Corporation Tramways and Omnibuses on April 11, the staff and employees presented gifts to Mr. H. Mozley, the late general manager, and three colleagues who are also retiring under the superannuation scheme. Mr. C. H. Stafford, the new general manager, presided. Mr. F. S. Whittaker, rolling stock superintendent, extended a hearty welcome to Mr. Stafford in the name of the works staff, and then made the presentations. Referring to Mr. Mozley's fifty years' service as general manager, he said they were all proud of his record. As a small token of esteem they asked him to accept a solid silver inkstand and calendar. Mr. Whittaker also handed gifts to Mr. J. S. Skinner, Mr. J. Crossley and Mr. W. Morris, whose periods of service were, respectively, forty-five, thirty-six and twenty-five years. Mr. Mozley acknowledged the gifts to himself in feeling terms, and mentioned engineering details and vestibule platforms as matters in which Burnley had influenced tramway operation.

Municipal Transport Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended March 29 give total receipts of £417,617, or £5,635 more than in the corresponding week of last year. The aggregate receipts for 52 weeks amounted to £21,534,980, an increase of £998,616 over the corresponding period of last year.

Digitized by Google

MISCELLANEOUS NEWS AND NOTES.

As this week's issue is printed on Wednesday, owing to the Easter recess, our list of traffic returns is incomplete.

Tyneside Tramways and Tramroads Co. abandoned their tramway services on April 13 and omnibuses have been substituted for them.

Wooden Wheels on Tramcars.—Manchester Corporation Tramways Committee has ordered a set of wooden wheels for a car. The experiment is being made with the object of running the cars more quietly.

A Manager's Eye for Detail.—A correspondent lately returned from Belfast writes: "Mr. W. Chamberlain, general manager of the Corporation Tramways, is in the market for a fleet of donkeys." The explanation is that the general manager controls the department's park at Belle Vue, and believes in making the resort attractive to children as well as to adults, thus securing increased traffic.

Tramways, Light Railways and Transport Association.—At the annual congress of the Tramways, Light Railways and Transport Association, which will be held at Hastings, as previously announced, from June 11 to 13, there will be a demonstration of omnibuses. On one of the mornings arrangements will be made for a special park and an announcement to that effect will be included in the official programme.

Conveyance of Postmen by Tramcar.—Arrangements have been made for postmen at Swansea to be conveyed on the cars of Swansea Tramways Co. at 7 a.m. to all distant parts, in order to secure more expeditious delivery of letters. A special car from Angel-street is to convey postmen serving the Uplands and Sketty districts, thus ensuring more prompt delivery of the mail from the North at 10.15 a.m.

No Standing in Nottingham Omnibuses.—Nottingham police no longer allow six passengers to be carried in omnibuses in excess of the seating capacity. Although, as the law stands, the number of passengers must not exceed the number for which the omnibus is licensed, the police hitherto had allowed the Corporation omnibuses at rush hours in wet weather to carry up to six standing passengers. The enforcement of the regulation is causing conductors considerable difficulty.

Glasgow Tramcar Overturned.—A Glasgow Corporation tramcar carrying about 70 passengers was derailed when travelling along Dumbarton-road towards Dalmuir about 11 p.m. on April 12. The car left the rails at the junction with Crow-road, swerved across the street and overturned on to the pavement, with its front embedded in the window of a public-house. One man was killed and about 60 passengers were taken to the hospital. The injuries of most of these were slight.

New A.A. Road Warning Signs.—The Automobile Association, with the approval of the Postmaster-General, is fixing nearly 500 reflex signs on telegraph poles at bends and curves on the London to Holyhead road. These signs are to assist drivers in keeping a safe course on the roadway after dark or in misty weather, and consist of a replica of the A.A. badge, studded with reflectors, which, picked up by the lights of approaching cars, show red on the near-side and white on the offside.

The Future of Derby Tramways.—Derby Corporation Bill, which was recently passed by the House of Lords, grants powers to adopt the trolley omnibus system on routes within the borough and on several others outside. A special committee of the Tramways Committee has been appointed, consisting of the chairman (Alderman Salisbury), the deputy-chairman (Alderman Sturgess), and Councillors Archer and Haslam, to consider and report on the future of the undertaking, and to submit a scheme of reorganisation covering a period of years.

Coach Traffic at Easter.—The railway companies and proprietors of motor-coaches report heavy advance bookings for the Easter holidays. Summer services will begin just before Good Friday and more coaches will probably be on the roads than in previous years. The L.G.O.C. will run extended tours into the Home Counties, but sufficient omnibus services will be maintained to meet holiday requirements in London. Over 100 routes into the country will be covered, and altogether more than 4,000 omnibuses will be run daily during the holidays.

Reduced Fares at Walsall.—Walsall Corporation Transport Committee has decided to make considerable reduction in fares on July 1. Under the new arrangement the time for the issue of workmen's tickets will be extended to apply to all cars and omnibuses arriving at any terminus up to 9 a.m. instead of cars and omnibuses leaving any terminus up to 8 a.m. as at present. Penny stages will be introduced on tramway and omnibus routes, and a new system of four-journey tickets at reduced rates will take the place of discount tickets. It is stated that the concessions will represent a loss in revenue of £16,300.

Glasgow Tramways Depreciation Rates.—For the financial year beginning June 1 Glasgow Transport Committee has reduced the depreciation on the permanent way from £1,000 to £900 per car mile. The depreciation on the electrical equipment is also to be modified in view of the installation of new controllers and other equipment in the reconditioned cars. It is estimated that these reductions will enable revenue to balance expenditure and will allow the fares to remain as at present. The ½d. fare is regarded as safe for another year. The department is, of course, not only financially in order but prosperous. Last year £275,256 was put aside for the renewal of permanent way, but only £191,924 was expended. The audited accounts show that while the loan debt is £3,061,505 the amount in the depreciation and renewals fund is £3,085,152.

National Safety Week.—Lord Brentford, ex-Home Secretary, and Mr. H. Morrison, Minister of Transport, were the speakers at a meeting held in London on Monday in support of the National Safety Week which the National Safety Council is organising from May 19 to 24. Lord Brentford remarked that some 7,000 people were killed on the roads every year. If the Road Traffic Bill, which proposed to abolish the speed limit, became law, there would be a still greater obligation on the part of motorists to "play the game" with the general public. The Minister of Transport said that if accidents increased the first year after the Bill was passed, it would be the end of his political career.

Traffic Control at Sheffield.—A special committee of Sheffield Town Council has been inquiring into the question of the control of traffic in the centre of the city. The chief constable, the city engineer, and the general manager of the transport department have all made recommendations which have been adopted by the Watch Committee for a trial period. The recommendations are considered to be the most comprehensive effort that has been made locally to solve the growing problem of congestion. The recommendations include alterations in the arrangement of tramcar loading stations, making certain streets one-way for all traffic proceeding to the city except tramcars, and the erection of refuges, etc.

Edinburgh Tramway Exhibits.—At the recent Civic Health and Hygienic Exhibition by the Edinburgh Public Health Department, the Corporation Tramways made an interesting and attractive exhibit. This was arranged so as to explain in a popular way some of the questions which a passenger might be expected to ask in relation to the tramways undertaking, and the exhibit was also designed to encourage the public to take more interest in their transport services. Exhibits included a large scale diagram of an electric tramcar in which rows of electric lamps were inserted, and these when lighted up by the manipulation of a controller placed alongside the car showed the path of the current during the application of power or brake. Red lamps were used to indicate the positive current flowing from the trolley wire, and blue lamps to show the negative current in the rails. Overhead automatic and street box point controllers were shown, and demonstrations were given of electric arc welding and magneto testing.

L.C.C. TRAMWAY MATTERS.

At a meeting of the London County Council on Tuesday, the Highways Committee presented several reports of special interest, including the estimates for the working of the tramways for the year 1930-31. The figures, which are given in another column, show that the position has been greatly improved. After payment of all interest and sinking fund charges, it is estimated that there will be a net surplus of £89,411, an increase of £37,000 on the net surplus for the year 1929-30.

Retirement of the General Manager.

The General Purposes Committee expressed their regret in reporting that Mr. J. K. Bruce, the general manager of the tramways, who had been suffering from ill-health for some time, had been certified by the Council's medical examiner as permanently unfit to carry out his duties. Mr. Bruce entered the service of the Council as the veterinary surgeon in 1898. He became traffic manager in 1903, and was promoted to be deputy chief officer of the tramways in 1910. In 1924 he took charge of the department as acting general manager, and was promoted to the position of head of the department on July 21, 1925. The Committee recommended that Mr. Bruce's retirement should take effect on June 30. He will, on retirement, be entitled to a pension of £805, together with a lump sum of £2,426. The Committee considered that Mr. Bruce's services to London in his position as general manager of tramways merit special recognition, and they recommended that a grant of £2,000 should be made to him.

Additional Breakdown Lorries.

The Highways Committee recommended that four additional breakdown tenders should be obtained for use in the tramways department. Early in 1929 two breakdown tenders were purchased. These were used for carrying tools and appliances, cranes and tractors for dealing with obstructions on the tracks. The machines had proved very successful and their use had reduced the length of delays to tramway services. The Committee recommended that four lorries purchased in 1919-20 should be replaced by four breakdown tenders, and that a purchase should be arranged from the same firm for the supply of similar tenders to those obtained in 1929, but embodying various minor improvements. The estimated cost of the four is £5,500.

Assistant Rolling Stock Engineer.

In reply to advertisements inviting applications for the position of assistant rolling stock engineer, 45 applications were received, and the Highways Committee reported that seven of the candidates had been interviewed. In accordance with standing orders, three names should be submitted to the Council, but the Committee were not prepared to submit more than two names, and they recommended that that portion of the standing order should accordingly be suspended. The names of the two candidates whom the Committee considered most suitable were Mr. Albert Edward Cook and Mr. George Flett Sinclair. The Committee recommended the appointment of Mr. Sinclair. The salary for the position has been fixed at £1,000 per annum, rising by annual increments of £50 to £1,200 per year.

The Council adjourned for the Easter recess until Tuesday, May 13.

Digitized by Google

CONTRACTS.

Bradford Tramways Committee has placed an order for twelve double-deck trolley omnibuses with the English Electric Company.

Derby Corporation Tramways have placed an order for a "Luchard" high-pressure air compressor for tyre inflation with the Equipment and Engineering Co., Ltd.

The Equipment and Engineering Co., Ltd., have received an order from Ashton-under-Lyne Corporation Tramways and Motors for an H.8 "Luchard" air compressor for inflating giant pneumatics.

East Ham Corporation recently accepted an estimate for the purchase of four new tramcars from the Brush Electrical Engineering Co. to augment the Barking-road service. As the London County Council has since agreed for the time being to provide the additional cars needed, the Corporation has decided not to make the purchase.

BUSINESS NOTES.

T. Bolton & Son have an order from Bradford Tramways Committee to supply twenty drums of copper trolley wire at £1,403.

Paterson & Dickinson, Ltd.—Mr. Alex. Paterson, late of the Foundation Co., Ltd., and Mr. J. G. Dickinson have commenced business as Paterson & Dickinson, Ltd., engineers and contractors, 70, Cornhill, London, E.C.3.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

Name.	Week ended	Latest Return. 1929	1930	+ or —	Aggregate. Wks.	1929-30	+ or —
		£	£	£		£	£
Aberdare U.D.C.	Apr. 8	779	672	— 107	1	672	— 107
,, Motor Buses	,, 8	378	377	— 1	1	377	— 1
,, Total	,, 8	1,157	1,049	— 108	1	1,049	— 108
Aberdeen Corp.	,, 9	4,640	4,414	— 226	45½	219,836	+ 16,720
Ashton-u-Lyne Corp.	,, 5	923	827	— 96	1	827	— 96
,, Motor Buses	,, 5	516	469	— 47	1	469	— 47
,, Trolley Buses	,, 5	300	278	— 22	1	278	— 22
,, Total	,, 5	1,739	1,574	— 165	1	1,574	— 165
Ayr Corporation	,, 12	456	422	— 34	47	27,067	+ 1,282
Barrow Corporation	,, 5	649	525	— 124	1	525	— 124
,, Motor Buses	,, 5	291	346	+ 55	1	346	+ 55
,, Total	,, 5	940	871	— 69	1	871	— 69
Belfast City	,, 11	10,542	11,511	+ 969	1½	18,283	+ 1,397
,, Motor Buses	,, 11	969	1,374	+ 405	1½	2,208	+ 656
,, Total	,, 11	11,511	12,885	+ 1,374	1½	20,491	+ 2,053
Birkenhead Corp.	,, 13	1,577	1,569	— 8	2	2,878	- 477
,, Motor Buses	,, 13	2,904	3,253	+ 349	2	6,017	— 201
,, Total	,, 13	4,481	4,822	+ 341	2	8,895	— 678
Birmingham Corp.	,, 8	28,045	26,752	— 1,293	1½	30,609	+ 5,111
,, Motor Buses	,, 8	13,042	14,954	+ 1,912	1½	17,011	+ 5,531
,, Trolley Buses	,, 8	532	581	+ 49	1½	611	+ 177
,, Total	,, 8	41,619	42,287	+ 668	1½	48,281	+ 10,819
Blackburn Corp.	,, 9	1,882	1,774	— 108	1½	2,295	— 306
,, Motor Buses	,, 9	Nil	326	+ 326	1½	424	+ 424
,, Total	,, 9	1,882	2,100	+ 218	1½	2,719	+ 118
Bradford Corporation	,, 5	15,678	14,383	— 1,295	52½	771,449	+ 43,387
Brighton Corporation	,, 13	2,135	2,259	+ 124	1½	4,212	- 362
Burnley Corporation	,, 12	2,882	2,851	— 31	.	...	...
,, Motor Buses	,, 12	563	669	+ 106	...	...	...
,, Total	,, 12	3,445	3,520	+ 75		...	...
Burton-on-Trent Corp.	,, 13	752	863	+ 111	2	1,662	+ 88
Bury Corporation	,, 6	2,159	1,582	— 577	2½	1,582	— 577
,, Motor Buses	,, 6	342	921	+ 579	2½	921	+ 579
,, Total	,, 6	2,501	2,503	+ 2	2½	2,503	+ 2
Cardiff Corporation	Mar. 29	7,923	7,586	— 337	51½	399,403	+ 9,585
Chatham and District	Apr. 3	1,236	1,114	— 122	13	13,597	+ 691
Chester Corporation	,, 6	424	Nil	— 424	1	Nil	— 424
,, Motor Buses	,, 6	Nil	597	+ 597	1	597	+ 597
,, Total	,, 6	424	597	+ 173	1	597	+ 173
Chesterfield Corp.	,, 7	1,946	1,965	+ 19	1	1,965	+ 19
Colchester Corp.	,, 9	506	552	+ 46	2	716	+ 7
Colne Corporation	,, 9	662	660	— 2	1½	897	— 72
Coventry Corporation	,, 6	2,414	2,063	— 351	1	2,063	— 351
,, Motor Buses	,, 6	1 700	1,811	+ 111	1	1,811	+ 111
,, Total	,, 6	4,114	3,874	— 240	1	3,874	— 240
Darlington Corp.	,, 12	910	1,062	+ 152	1½	1,871	+ 251
Derby Corporation	,, 12	2,326	2,447	+ 121	2	4,439	— 220
,, Motor Buses	,, 12	574	879	+ 305	2	1,591	+ 433
,, Total	,, 12	2,900	3,326	+ 426	2	6,030	+ 213
Dover Corporation	,, 5	365	293	— 72	½	293	- 72
Dundee Corporation	,, 8	3,277	3,374	— 97	46½	160,826	- 5,545
East Ham Corp.	,, 12	2,246	2,325	+ 79	1½	4,111	+ 387
Edinburgh Corp.	,, 5	14,267	13,648	— 619	46½	664,645	+ 25,345
,, Motor Buses	,, 5	3,235	3,444	+ 209	46½	161,887	+ 18,433
,, Total	,, 5	17,502	17,092	— 410	46½	826,532	+ 43,778
Exeter Corporation	,, 9	850	825	— 25	1½	1,054	- 235
Glasgow Corporation	Mar. 29	43,940	43,767	— 173	43	1,908,406	+ 29,319
,, Motor Buses	,, 29	4,923	8,074	+ 3,151	43	275,083	+ 134,695
,, Total	,, 29	48,863	51,841	+ 2,978	43	2,183,489	+ 164,014
Gloucester Corp.	Apr. 9	515	694	+ 179	1½	886	+ 125
Grimsby Corporation	,, 12	1,296	1,474	+ 178	2	2,655	+ 364
Halifax Corporation	,, 8	4,213	4,967	+ 754	1½	5,631	— 443
Huddersfield Corp.	,, 5	7,716	6,292	— 1,424	1	6,292	— 1,424
Hull Corporation	,, 12	5,849	6,104	+ 255	2	10,813	+ 413
,, Motor Buses	,, 12	1,274	1,454	+ 180	2	2,514	+ 302
,, Total	,, 12	7,123	7,558	+ 435	2	13,327	+ 715
Ilford Corporation	,, 5	1,461	1,520	+ 56	½	1,178	+ 144
Ipswich Corp. Trol.Bus	,, 12	1,186	1,240	+ 54	1½	2,203	+ 95
Isle of Thanet	,, 9	505	405	— 100	14½	5,044	— 525
Kilmarnock Corp.	,, 12	442	502	+ 60	47	22,715	+ 1,711
Lancashire Un.	,, 6	2,280	2,230	— 50	13½	30,022	— 1,184
,, Motor Buses	,, 6	4,437	4,770	+ 333	13½	62,479	+ 8,982
Leeds Corporation	,, 5	19,883	19,819	— 64	½	15,182	+ 1,183
Leicester Corp.	,, 5	8,309	8,411	+ 102	1	6,484	+ 607
Lincoln Corp.	,, 13	849	867	+ 18	2	1,650	— 150
Liverpool Corp.	,, 5	20,012	20,253	+ 241	52	1,567,650	+ 31,902
London County Coun.	,, 9	81,312	83,113	+ 1,801	14	108,273	+ 3,005
Luton Corporation	,, 9	384	422	+ 38	1½	535	— 51
Maidstone Corp.	,, 10	218	Nil	— 218	1½	Nil	- 706
,, Motor Buses	,, 10	254	255	+ 1	1½	481	— 50
,, Trolley Buses	,, 10	208	637	+ 339	1½	1,597	+ 771
,, Total	,, 10	770	892	+ 122	1½	1,878	+ 15
Manchester Corp.	,, 5	26,498	25,375	— 1,123	1	25,375	— 1,123
,, Motor Buses	,, 5	3,461	5,866	+ 2,405	1	5,866	+ 2,405
,, Total	,, 5	29,959	31,241	+ 1,282	1	31,241	+ 1,282

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS—*Continued.*

Name.	Week ended	Latest Return. 1929	1930	+ or —	Aggregate. Wks.	1929-30.	+ or —
		£	£	£		£	£
Middlesbrough Corp.	Apr. 8	1,102	1,073	— 29	1½	1,215	— 216
,, Motor Buses	,, 8	483	573	+ 90	1½	650	+ 7
,, Total	,, 8	1,585	1,646	+ 61	1½	1,865	— 209
Newcastle-on-Ty Corp.	,, 5	7,120	6,963	— 157	½	6,963	— 157
,, Motor Buses	,, 5	1,548	1,913	+ 365	½	1,913	+ 365
,, Total	,, 5	8,668	8,876	+ 208	½	8,876	+ 208
Newport Corporation	Mar. 29	779	724	- 55	52	39,681	+ 2,830
,, Motor Buses	,, 29	1,735	1,566	— 169	52	87,328	+ 313
,, Total	,, 29	2,514	2,290	— 224	52	127,009	+ 3,143
Northampton Corp.	Apr. 4	999	626	— 373	½	626	— 373
,, Motor Buses	,, 4	331	363	+ 32	½	363	+ 32
,, Total	,, 4	1,330	989	— 341	½	989	— 341
Nottingham Corp.	,, 10	10,040	8,176	— 1,864	1½	8,176	— 1,864
,, Motor Buses	,, 10	3,405	4,517	+ 1,112	1½	4,517	+ 1,112
,, Trolley Buses	,, 10	885	1,697	+ 812	1½	1,697	+ 812
,, Total	,, 10	14,330	14,390	+ 60	1½	14,390	+ 60
Oldham Corporation	,, 12	3,473	3,496	+ 23	3	9,722	— 883
,, Motor Buses	,, 12	1,889	2,007	+ 118	3	5,377	— 768
,, Total	,, 12	5,362	5,503	+ 141	3	15,099	— 1,651
Plymouth Corp.	,, 12	3,646	3,764	+ 118	1½	6,819	+ 273
,, Motor Buses	,, 12	1,829	2,334	+ 505	1½	4,213	+ 889
,, Total	,, 12	5,475	6,098	+ 623	1½	11,032	+ 1,162
Portsmouth Corp.	,, 5	6,511	6,677	+ 166	1	6,677	+ 166
Preston Corporation	,, 9	1,636	1,630	— 6	1½	2,100	— 308
,, Motor Buses	,, 9	446	500	+ 54	1½	645	— 19
,, Total	,, 9	2,082	2,130	+ 48	1½	2,745	— 327
Rawtenstall Corp.	,, 6	807	822	+ 15	½	720	...
,, Motor Buses	,, 6	544	586	+ 42	½	518	...
,, Total	,, 6	1,351	1,408	+ 57	½	1,238	...
Reading Corporation	,, 10	1,456	1,416	— 40	1½	2,013	— 56
,, Motor Buses	,, 10	826	939	+ 113	1½	1,315	+ 138
,, Total	,, 10	2,282	2,355	+ 73	1½	3,328	+ 82
Rochdale Corp.	,, 5	2,964	2,706	— 258	...	2,063	— 619
,, Motor Buses	,, 5	1,612	1,595	— 17	...	1,191	— 188
,, Total	,, 5	4,576	4,301	— 275	...	3,254	— 807
Rotherham Corp.	,, 7	2,799	2,789	— 10	1	2,789	— 10
Salford Corporation	,, 6	11,348	11,409	+ 61	1	11,409	+ 61
Shefield Corp.	,, 5	21,343	20,989	— 354	½	20,989	— 354
Southampton Corp.	,, 9	3,132	3,303	+ 171	2	4,253	+ 88
,, Motor Buses	,, 9	650	868	- 218	2	1,115	+ 241
,, Total	,, 9	3,782	4,171	+ 389	2	5,368	+ 329
Southend-on-Sea Corp.	,, 9	2,028	1,934	— 94	1½	2,486	— 816
Southport Corp.	,, 5	1,272	1,225	— 47	½	1,225	— 47
St. Helens Corp.	,, 8	2,015	2,310	+ 295	1½	2,310	+ 295
Sunderland Corp.	,, 8	2,881	2,647	— 234	1	2,647	— 234
Swindon Corp.	,, 2	167	236	+ 69	½	236	+ 69
Wallasey Corp.	,, 5	1,430	1,155	— 275	½	901	— 75
,, Motor Buses	,, 5	2,190	1,960	— 230	½	1,488	+ 101
,, Total	,, 5	3,620	3,115	— 505	½	2,389	+ 26
Walsall Corporation	Mar. 30	3,600	3,475	— 125	52	180,885	+ 15,678
Walthamstow Corp.	Apr. 5	2,425	1,843	— 582	½	1,843	— 582
Warrington Corp.	,, 10	913	921	+ 8	2	1,832	+ 6
,, Motor Buses	,, 10	421	508	+ 87	2	1,013	+ 138
,, Total	,, 10	1,334	1,429	+ 95	2	2,845	+ 144
West Ham Corp.	,, 3	6,046	6,238	+ 192	½	2,663	— 1,010
Wolverhampton Corp.	,,						
,, Motor Buses	,, 6	3,239	2,081	— 1,158	1	2,081	— 1,158
,, Trolley Buses	,, 6	3,492	3,086	— 406	1	3,086	— 406
,, Total	,, 6	6,731	5,167	— 1,564	1	5,167	— 1,564
York Corporation	,, 9	1,288	1,224	— 64	1½	1,224	— 64
,, Motor Buses	,, 9	511	644	+ 133	1½	644	+ 133
,, Total	,, 9	1,799	1,868	+ 69	1½	1,868	+ 69

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

Name.	Week or M'th.	Latest Return. 1928-29.	1929-30.	Wks. or *Ms.*	Aggregate. 1929-30.	In. or Dec.
Anglo-Argentine	Apr. 8	£94,073	£89,622	14 w	£1,177,125	— £39,248
Brazilian Traction $	Feb.	3,755,709	3,708,698	2 *m*	7,660,787	- 12,245
British Columbia $	Feb.	1,192,871	1,246,551	8 *m*	9,852,338	+ 552,577
Buenos Aires Lacroze	Apr. 13	13,483	12,550	41 w	481,755	— 38,681
Burma E. Sup. Co. Rs.	Feb.	63,808	63,098	7 *m*	438,968	— 26,772
Calcutta ... Rs.	Apr. 12	127,296	115,827	14½ w	1,782,542	— 137,640
Cape Town	Feb.	28,274	27,479	...	...	...
Carthagena & Herrerias	Mar.	853	1,003	3 *m*	3,640	+ 1,083
Durban	Feb.	21,848	21,321	7 *m*	166,874	+ 2,240
East India	Mar.	3,892	3,863	8 *m*	30,525	+ 768
Kalgoorlie	Dec.	1,900	1,801	12 *m*	20,618	— 468
La Plata	Dec.	10,300	10,327	12 *m*	116,149	+ 2,604
Madras (2 weeks) Rs.	Apr. 15	44,210	46,543	14 w	328,559	+ 23,347
Para	Mar.	14,971	14,976	4 *m*	57,647	+ 281
Port Elizabeth ...	Feb.	7,478	7,110	...	...	...
Rangoon ... Rs.	Mar.	121,246	164,600	3 *m*	459,810	+ 107,429
Shanghai ... $	Mar.	339,785	377,849	3 *m*	1,063,722	+ 110,009
Singapore ... ...$	Mar.	133,000	143,000	6 *m*	798,000	+ 102,000
Winnipeg ... ...$	Feb.	570,895	567,569	2 *m*	1,196,548	+ 17,687

RAILWAY RECEIPTS.

14th Week ended Apr. 6th	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week.	Inc. or Dec. to Date.
G.W.R.	210,000	— 30,000	344,000	+ 58,000	554,000	+ 28,000	— 119,000
L.M.S.R.	457,000	— 76,000	832,000	+ 147,000	1,289,000	+ 71,000	— 502,000
L.N.E.R.	308,000	— 61,000	682,000	+ 124,000	990,000	+ 63,000	— 61,000
S.R.	284,000	— 37,000	110,000	+ 31,000	394,000	— 6,000	— 157,000
Totals	1,259,000	— 204 000	1,968,000	+ 360 000	3,227,000	+ 156 000	— 839,000

ELECTRIC RAILWAYS.

Name.	Week Ended.	Latest Return. 1929.	1930.	+ or —	Aggregate. 1930.	+ or —
London Underground						
Common Fund Cos.	Apr. 5	294,100	306,700	+ 12,600	4,039,600	+ 345,600
Lond. & Sub. Group	,, 5	43,700	44,100	+ 400	583,700	+ 60,700
Metropolitan Railway	,, 12	35,700	36,700	+ 1,000	546,600	+ 18,700
Liverpool Overhead	,, 13	1,563	1,473	— 90	22,255	— 1,153
Mersey Railway	,, 12	4,617	4,749	+ 132	71,134	+ 2,256

Digitized by Google

THE
Tramway and Railway World
FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.
Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates:

FOR THE UNITED KINGDOM—Twenty-five shillings per annum.

FOR ALL PLACES ABROAD—Twenty-five shillings per annum. Postage to Canada, 6s.; to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS

LONDON, APRIL 26, 1930.

VALUE OF THE ESSAY COMPETITION.

A useful feature of the work of the Municipal Tramways and Transport Association is the essay competition in the finance, traffic and engineering departments. Particulars of the subjects to be dealt with this year are given elsewhere in this issue, and it should be noted that all essays have to be received by the Secretary of the Association not later than June 30. There is consequently no time to be lost if they are to do credit to the authors. Like the conference papers the essay competitions should form an important part of the activities of the Association, and on that ground managers should encourage entry into the competition by members of their staff. The money prizes and the accompanying silver medals offered to the authors of the best essays in each department are worth winning, and the publication of the essays by the Association provides the industry with materials and ideas that may be advantageous to many undertakings. Reference to the announcement shows that the subjects upon which essays are to be written are practical and helpful to any committee or manager. It is to be hoped, therefore, that increased interest will be shown in the competition. In 1928 there were 56 entrants, as compared with 26 in 1927 and 48 in 1926. As there are one hundred and six local authorities in the membership there is ample scope for obtaining the additional entrants for which the President of 1929 pleaded in a letter to all general managers. It should be a matter of pride to members of the Association that their organisation is the only one in this country showing such an interest in the young men in the industry. The fact that, not for the first time, two of this year's essays are to deal with motor omnibus operation is noteworthy; for there are now only few tramway undertakings that do not operate the petrol omnibus. All these authorities must be interested in an essay that describes the organisation necessary for an omnibus undertaking of from fifty to one hundred vehicles, and in another that describes the lay-out and equipment for a garage for about one hundred omnibuses. "Live" subjects have also been selected for all the other essays.

GLASGOW OMNIBUS TEST CASE.

Stipendiary Smith, at Glasgow Central Police Court, on April 17, gave judgment in the charge against the Lanarkshire Traction Co. that they did on February 15 use a motor vehicle for hire as a stage carriage within the city without a certificate from the Magistrates' Committee, contrary to the Police Act, 1866.

The vehicle, the Stipendiary stated, had been certified as a stage carriage by the Magistrates' Committee in May, 1929, but owing to a breach of the conditions the certificate was revoked on February 10 last. The respondents again made application for a certificate, but were refused on March 10. The main questions at issue were whether the vehicle must be certificated under the Police Act as a stage carriage to ply for hire within the city, and if so whether the Committee had power to add any conditions to such a certificate. Against the Fiscal's contention that the respondents had contravened the Act, counsel for the respondents maintained that they had statutory powers to run omnibuses, and on the occasion in question no certificate was required; that even if a certificate were needed the Committee had no power to add any conditions, in particular as regards the route which the vehicles must follow within the city; and that the Committee had no power to cancel it.

His Honour added that the powers given to the company by the Acts of 1908 and 1920 were further enlarged under the terms of the Lanarkshire Traction Order Confirmation Act, 1929. The Act of 1908 provided that the respondents might provide, work and use omnibuses, but not to a greater distance than five miles from any point on their tramway system provided they observed any by-laws of any local authority within the districts in which vehicles might be run. If the company must observe any such by-laws they surely had to observe also the provisions of the very Act of Parliament which gave that local authority power to make such by-laws and so obtain a certificate to use their vehicles within the city. If the respondents had any quarrel with the conditions imposed by the Magistrates' Committee they had the right of appeal to the Minister of Transport, whose decision was final. His Honour was of opinion that the Committee had power to revoke a certificate following a breach of any of its conditions. Therefore he held that the vehicle in question ought to have been certificated, and he imposed a modified penalty of £1. An agent for the respondents asked for a stated case.

A NEWCASTLE OMNIBUS AGREEMENT.

Mr. T. J. D. Atkinson, K.C., held an inquiry at Newcastle on April 15, on behalf of the Minister of Transport, into the proposal to substitute omnibuses for tramcars on the Tyneside Tramways and Tramroads Co.'s system. The application made by Newcastle Corporation concerned only three-fifths of a mile of road from the city boundary to Park-road, Wallsend. Mr. C. B. Fenwick appeared for the Corporation, Mr. F. J. Wrottesley, K.C., for the L.N.E.R. Company, and Mr. E. Herbert for the Tynemouth and District Electric Traction Co.

The L.N.E.R. Company and the Traction Co. opposed the application, but offered if licences were granted by the Corporation to either company for their vehicles which run through the city to Gateshead that they would withdraw their objections to the Corporation's application, and would not oppose their application to run on routes 2 and 3 to North Shields should they make it. Mr. Fenwick replied that at the moment the offer could not be entertained.

Mr. Fenwick, alluding to the working agreement between the Tyneside Tramways Co. and the Corporation, said that they now sought powers to run omnibuses over the territory in Wallsend over which the tramcars had run. Tynemouth Corporation, who had refused the Newcastle Corporation permission to run omnibuses into their areas, was not represented at the inquiry.

Mr. T. P. Easton, general manager, Newcastle Corporation Transport, said they were running tramcars on the Wallsend route up to May 1, but if the application were granted they would probably run them to Chillingham-road only.

The Inspector decided to adjourn the inquiry for private consultation between the parties, and said that it would be a great advantage to Newcastle if an amicable settlement could be reached without the intervention of the Minister.

Two days later it was announced that Newcastle Corporation would issue licences for nineteen vehicles to the Tynemouth Electric Traction Co. to maintain a half-hourly service within the city boundary, and that the Tynemouth Co. would withdraw its objection to the joint service of the Corporation and the Tyneside Tramways Company.

Passenger Shelters at Bristol.—In a letter to the Minister of Transport, Mr. J. H. Alpass, M.P., alleged that repeated representations had been made to the Bristol Tramways and Carriage Co. as to the lack of shelters. Replying to the Minister, the company state that Mr. Alpass must have been misinformed so far as any official representations from the City Council are concerned. Recently the company paid £300 to the Corporation for the erection of an artistic shelter on Durdham Down. Several waiting rooms had been provided elsewhere, but these had had to be closed owing to the impossibility of keeping such places in sanitary condition. The company had offered to erect a shelter at the Tramways Centre, but the Council declined the offer.

Digitized by Google

THE TRAMWAYS, LIGHT RAILWAYS AND TRANSPORT ASSOCIATION.

PROGRAMME FOR THE CONGRESS AT HASTINGS.

The annual Congress of the Tramways, Light Railways and Transport Association will be held at Hastings on June 11 to 13. Special carriages will be attached to the train leaving Charing Cross Station on Wednesday, June 11, at 4.20 p.m., for the use of members on presentation of the Congress badge. An informal reception by the Chairman of the Council (Mr. E. H. Edwardes) will be held at the Queen's Hotel at 9 p.m. on Wednesday.

The provisional programme for the Congress is as appended :—

THURSDAY, JUNE 12.

10 a.m.	Official reception by the Mayor of Hastings (Mr. Russell-Davies, K.C.) at the Queen's Hotel.
10.30 a.m.	Thirty-third annual general meeting.
11 a.m.	Paper : " Notes on Substituting a Trolley-Omnibus System for a Tramway," by Mr. W. Vincent Edwards, A.M.I.E.E., general manager and engineer, Hastings Tramways Company. Followed by a discussion.
1 p.m.	Luncheon at Queen's Hotel by invitation of the Mayor and Corporation of Hastings.
2.30 p.m.	Demonstration of motor omnibuses at the Cricket Ground, followed by an excursion to Winchelsea, and Rye.
7.30 p.m.	Members will be free to dine.

FRIDAY, JUNE 13.

10 a.m.	Paper : " The Tramcar : Present and Future," by J. L. Burton, manager, Road Transport Department, English Electric Co., Ltd., assisted by H. H. Andrews, sales manager, Traction Department. A discussion will follow.
1 p.m.	Luncheon at White Rock Pavilion, at the invitation of the chairman and directors of the Hastings Tramways Co., Ltd.
2.30 p.m.	Excursion by motor coaches to Bexhill, Pevensey Castle and Hurstmonceaux Castle, returning via Battle Abbey.
7.30 for 7.45.	Members' annual dinner at the Queen's Hotel, the evening concluding with a dance.

Communications in regard to the Congress should be addressed to Mr. A. De Turckheim, general secretary, 58, Abbey House, Victoria-street, Westminster, S.W.1.

MISCELLANEOUS NEWS AND NOTES.

Bournemouth Corporation has received sanction to borrow £18,000 for purchase of 12 omnibuses.

New Cars for Southampton.—The Ministry of Transport has sanctioned the borrowing of £10,000 for the provision of seven new tramcars.

Scarborough Transport Services.—The Town Council has sought the advice of Sir Henry Maybury with regard to the transport services of Scarborough, including those of the Tramways Co.

London Street Fatalities.—During the first three months of the present year there were 320 street deaths in the Metropolis. This number is 25 per cent. greater than in the same period of last year.

Passengers Injured by Broken Glass.—A collision between an omnibus and a tramcar in Essex-road, North London, on Thursday, resulted in six women sustaining injuries, chiefly from splintered glass.

Free Passes for Old Age Pensioners.—West Ham Council has sanctioned the issue of free passes from May 1 on the Council's tramways to local old age pensioners over 70 who are registered in the borough.

Stoke-on-Trent Watch Committee has informed a number of omnibus proprietors who are not yet paying the recognised trade union rates of wages that they are expected to adopt the recognised rates immediately.

Traffic Danger at Kingston.—The " Surrey Comet " complains that drivers of motor vehicles will not give tramway passengers time to board or leave the cars, and that in too many cases the warning hand of the conductor is unheeded by motor drivers.

L.N.E.R. Economy.—The London North-Eastern locomotive carriage and wagon shops at Doncaster are being put on a five days' week, Saturday work being eliminated. It is estimated that the change will effect a reduction in the wages bill of about £1,500 a week.

Omnibuses for Colwyn Bay.—The Llandudno and Colwyn Bay Electric Railway Co. has made an offer to Colwyn Bay Council to abandon and ultimately remove the tramway track between the centre of the town and the terminus at Old Colwyn on certain conditions. One is that a number of omnibus licences be granted to the company, who propose to enter into an arrangement with the omnibus owners now operating over the route.

Hours of Work Proposals.—The text of the Hours of Industrial Employment Bill has been published by the Stationery Office. It is proposed to limit the ordinary working hours of any workman to whom the Bill applies to eight hours in any day and 48 hours in any week. A certain elasticity will be permitted in the hours worked in any day provided that the stipulated weekly limit is not exhausted. For the railways certain special provisions are made.

Municipal Tramways & Transport Association.—Owing to a misprint in our issue of April 17, it was stated that the Managers' section of the Municipal Tramways and Transport Association would meet at Nottingham. The meeting is to be held at Leicester on May 29 and 30.

The Faraday Medal (9th award) will be presented to Sir Ernest Rutherford, O.M., F.R.S., at the meeting of the Institution of Electrical Engineers on Thursday, May 1, at 6 p.m. Subsequently, the twenty-first Kelvin lecture will be delivered by Mr. R. H. Fowler, F.R.S., on some recent advances on the electron theory of metals.

A Newcastle Incident.—Tramway employees at Newcastle held a meeting at midnight on April 19 and protested against long hours and excessive duty assigned to some of them for Easter Monday and Tuesday. The superintendent examined the duty sheets and found that a number of men had been given somewhat long, continuous periods, and readjustments were accordingly made.

New Cars and Omnibuses for Belfast.—The Finance Committee of Belfast Corporation has approved of a proposal of the Tramways Committee to borrow £260,000 for the following objects : New tramcars £110,000, new motor omnibuses £100,000, modernisation of tramcars £50,000. It is not intended at present to recommend the carrying out of the trolley omnibus proposals included in the Corporation Bill.

Popularity of Reconditioned Cars.—The traffic statement of the Glasgow Transport Department for the period from June 1 to April 12 shows an increase of £170,819 in the receipts of the tramways, omnibuses and the subway. On the tramways the increase was £31,445, which is regarded as showing the popularity of the new and reconditioned tramcars. The increase represents about 10¾ million more passengers.

Hastings Omnibus Demonstration.—Mr. A. De Turckheim, General Secretary of the Tramways, Light Railways and Transport Association, informs us that the demonstration of motor omnibuses which is being arranged in connection with the Congress of the Association to be held at Hastings from June 11 to 13, will be confined to those companies that are members of the Association. The demonstration will take place after luncheon on the Thursday (June 12).

Glasgow Representation at Foreign Conferences.—The Transport Committee of Glasgow Corporation is sending two members and the general manager to the congress of the International Union of Tramways, Light Railways and Public Omnibuses, at Warsaw, from June 29 to July 6. Other deputations are attending the International Roads Congress at Washington during the week October 6-10, and the congress of Superintendents of Municipal Depots and Cleansing Departments at Stuttgart on June 1-4.

Birmingham and Midland Omnibus Deal.—The Birmingham and District Investment Trust, a subsidiary company of the British Electric Traction Co., has announced the completion of the sale of half their interest in the Birmingham and Midland Motor Omnibus Co. to the London, Midland and Scottish Railway Co. and the Great Western Railway Co. The directors propose to recommend a bonus of £1 six per cent. cumulative redeemable preference share for every ordinary share held, and a final dividend of 6 per cent. for the year 1929 on the ordinary shares of the company.

Late Birmingham Omnibuses for Easter Excursions.—In connection with the Easter excursions of the London, Midland and Scottish Railway, the Birmingham Corporation provided a service of late omnibuses on the Sunday from midnight to certain suburbs, and on the Monday from midnight and at intervals up to 4 a.m. to the suburbs. The fares were 4d. for the first ordinary 1½d. stages and 6d. for any distance beyond. A modified early morning service was available on all main routes from 5 a.m. to connect with excursions leaving New-street Station on Easter Monday.

Trouble Over a Salford Suspension.—The Mayor of Salford, on April 19, intervened in a dispute between the local branch of the Transport Union and the Tramways Department concerning the suspension of an omnibus driver for rounding a corner in an alleged dangerous manner when returning to the garage. The branch executive had decided to recommend the employees to strike if the suspension was not expunged. The Mayor invited representatives of the Union and the Tramways Committee to his parlour, and after a long discussion a settlement satisfactory to both sides was reached.

Swedish Railway Electrification.—It is reported that the Swedish Government have adopted a proposal of the Riksgad for the electrification of the State railway line Stockholm-Malmoe-Traelleborg with certain junction lines. The scheme comprises, in all, 960 kilometres. The Ministry of Communications, in publishing the proposal, points out that the electrification will greatly decrease the dependence of the Swedish railways on supplies of fuel from abroad. The Stockholm-Gothenburg line, which was electrified several years ago, has proved economical in working and has given advantages in connection with the increase of traffic.

National Safety First Association.—Sir George Bellhouse presided at the annual meeting of the National Safety First Association, which was held on Thursday at Caxton Hall, London. The Executive Committee reported that six new branches were opened during the past year. Over 2,500,000 copies of a new pamphlet setting forth the rules and courtesies of the road were distributed with motor driving licences. More than 31,000 drivers entered for the freedom-from-accidents competition. Already 108 drivers in London held gold medallions for having driven for ten consecutive years without any blameworthy accident. Over 100,000 children attended film lectures on avoiding accidents.

Digitized by Google

Loss on Blackpool Omnibuses.—The omnibus services of Blackpool Corporation entailed a loss of about £17,000 in the last financial year, and a report will be made to the Town Council setting out the steps to be taken to make the services self-supporting.

Miners Run an Omnibus Service.—On April 28 a number of miners engaged at Maltby Main Colliery, near Rotherham, will inaugurate an omnibus service to convey miners to and from the colliery. No tickets will be issued, but by agreement each of the men will pay 6d. a week.

Manchester Tramway Speed.—Manchester Corporation Transport Department has made application to increase the speed of trams on certain city routes as well as on sections outside the city over which running powers are held by the Corporation. On April 24 Lieutenant-Colonel Anderson, of the Ministry of Transport, inspected a number of routes on which it is proposed to increase the speed of trams from 16 to 20 miles per hour, the maximum speed.

London Holiday Services.—The London General Omnibus Company's summer programme of country omnibus services was available between Good Friday and Easter Monday. More than 4,000 vehicles were in readiness on the 100 services. The company also operated coach trips from suburban centres to Windsor, Hertford, Gt. Gaddesden, Newlands Corner, Hindhead and Charing Cross. Despite the cold weather the services were in great request. This was also the case with the London County Council and other tramways. The L.C.C. cars arranged to run over 200,000 miles on Easter Monday, and three out of every four cars were of the Pullman type.

Bournemouth Omnibus Extensions.—At a meeting of Bournemouth Tramways Committee the town clerk reported, in connection with the Corporation Bill (Tramways Trolley Vehicles and Omnibuses), that Mr. A. R. Fearnley, whose services had been engaged by the Council, advised that, if suitable terms could be arranged, it would be desirable to acquire the undertaking of the Hants and Dorset Motor Services, Ltd., so far as concerns services operating within the borough and the added areas between Bournemouth and Christchurch. The Committee authorised the Council's representatives, with Mr. Fearnley, to negotiate with the company for the proposed purchase.

Motor Vehicle Number Plates.—The Minister of Transport announces that on October 6 next new regulations dealing with motor vehicle number plates will come into operation. The principal alterations are that motor bicycles and light invalid carriages must carry larger back number plates, and that it is compulsory to illuminate the back plate. As regards motor vehicles generally, the new regulations provide that when a back number plate is illuminated by transparency or translucency, the letters and figures of the identification mark may show either white or red, and if they appear red, a separate rear red light is not required. During daylight the identification mark must show white against a black background.

Inquiry into the Glasgow Tramcar Mishap.—Colonel E. P. Anderson, representing the Ministry of Transport, on Tuesday held an inquiry into the overturning of a Glasgow Corporation tramcar on April 12 at the junction of Dumbarton and Crow-roads. Over sixty persons were injured in the accident, two of them fatally. Colonel Anderson mentioned that the inquiry was of a technical nature and was not intended to supersede or to be a substitute for proceedings elsewhere. Mr. L. Mackinnon, general manager of the Corporation Transport Department, at the inspecting officer's request, made a brief statement regarding the accident. It was to the effect that the car, at 10.45 p.m., for some reason not yet determined, instead of taking the straight line westwards at Rosevale-street, took the points leading into Crow-road, left the track, and overturned. Colonel Anderson then announced that he was informed that other inquiries were still possible, and it was evident that in the interest of the driver of the car the evidence on this occasion must be taken in private.

CONTRACTS.

Glasgow Transport Committee has recommended the acceptance of the tender of John Baker & Bessemer, Ltd., of Rotherham, for axles, with wheels and tyres.

The J. G. Brill Co. have recently received an order from the United Electric Railways, of Baltimore, for 100 cars. The order includes 200 type 177E bogies. From the same company an additional order has been received for 100 177E bogies. The Lehigh Valley Transit Co. has ordered 10 electric cars mounted on type 177E bogie trucks.

Motors for Glasgow Cars.—The General Electric Co., Ltd., Magnet House, Kingsway, London, W.C.2, has received an order from Glasgow Corporation Tramways for electrical equipments required for their tramcar rebuilding scheme. The order comprises 450 motors of 60 h.p. each on the one hour rating, 60 volts, together with resistances and circuit breakers.

Strachans (Acton), Ltd., of North Acton, London, W.3, have a contract for the bodywork for 13 double-deck omnibuses for the Aldershot and District Traction Co., Ltd. The bodies are being mounted on Dennis chassis. Messrs. Strachans are also supplying twelve 32-seat single-deck bodies on Dennis E.V. chassis for the Aldershot and District Traction Co.

A Liverpool Corporation Order.—In our issue of April 17 it was mentioned that Liverpool Corporation recently purchased a "Prince" 32-seat chassis from the Vulcan Motor and Engineering Co., Ltd., at the price of £750. It should be noted that this price was arrived at owing to the fact that the chassis had been supplied without tyre equipment and other items which are included in the standard chassis, but were not required by Liverpool Corporation. This accounts for the low price at which the chassis was purchased.

PERSONAL.

Mr. J. Wild, manager of the Todmorden Corporation Omnibus Department during the past ten years, has been appointed manager and engineer of Morecambe Corporation transport undertaking.

Mr. Percy Wardle has been appointed engineer and manager to Cannock Electric Supply Department. Mr. Wardle has been mains engineer to Walsall Corporation Electric Supply Department for the past ten years.

Mr. D. Hays, formerly manager of the Scottish General Omnibus Company, has been appointed to control the management of the group of transport undertakings owned by the Midland Counties Electric Supply Co., Ltd.

Mr. D. C. McLagan, D.S.O., O.B.E., lately secretary of the Accumulator Makers' Association, has been appointed secretary of the Society of Motor Manufacturers and Traders. The vacancy was caused by the resignation of Mr. R. H. S. Spicer.

Mr. Charles H. Stafford, the newly-appointed general manager of Burnley Corporation Tramways and Omnibuses, was the recipient of a handsome present, consisting of a gold wrist watch and silver cigarette case, suitably inscribed, subscribed for by his former colleagues at Reading, on the occasion of his leaving to take up his appointment at Burnley. The presentation was made by Mr. J. M. Calder, general manager and engineer, Reading Corporation Tramways and Motors, in the presence of a large gathering of the staff and employees of the department and representatives from other departments of the Corporation.

We regret to record the death of **Mr. Andrew Wilson Tait** which occurred on April 21, at the age of 54 years. Mr. Tait was chairman of the Metropolitan Electric Supply Company, Ltd., the Delhi Electric Tramways and Lighting Co., Ltd., and other companies.

FINANCIAL.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended April 23 amounted to £77,189, a decrease of £5,359 compared with the corresponding week of last year. The route length was 165.55 miles, as compared with 166.29 a year ago. From April 1 (the commencement of the financial year) to April 23 (3 2-7 weeks) the total receipts were £269,457, a decrease of £501.

Buenos Aires Underground Railway.—To finance the new underground railway now under construction in Buenos Aires, the Harris Forbes banking group is to make an issue of three-year notes of the South American Railways Co. This company was recently organised as a medium for co-operation between Argentine, British and American interests operating railways in South America.

Municipal Transport Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended April 5 (the first week of the financial year) amounted to £388,142, a decrease of £3,942 as compared with the corresponding week of last year. The decrease is mainly due to a falling off in receipts in towns affected by the difficulties of the woollen trade.

Tynemouth and District Electric Traction Co.—The annual report and balance sheet shows that the revenue for the year ended December 31, 1929, amounted to £63,484, an increase of £1,200 as compared with the previous year. The expenditure, including debenture and loan interest and the provision of £2,000 for renewals (£7,000 in 1928) amounted to £61,939. The net profit was £1,545, to which was added £330 brought forward. The dividend of 5 per cent. on preference shares to September 15 last absorbed £1,080, and £795 is carried forward.

Imperial Tramways Co.—The directors of the Imperial Tramways Co. have announced that the assets of the company have been realised, and that they propose that the company should go into voluntary liquidation and the assets be distributed. A resolution to this effect will be proposed at a meeting to be held on May 12. If the resolution is passed, the shareholders are advised that the 4½ per cent. debenture stock, of which £300,000 is outstanding, will be paid off at 110 per cent. After the payment of the debenture stock, the balance of the assets will be distributed to the shareholders.

English Electric Co.—At a meeting of the English Electric Co., on April 17, Mr. W. L. Hichens, the chairman, alluded to the loss which the company had sustained by the death of Sir Alexander Gracie. Referring to the report and balance sheet, he said that it dealt with a period prior to the reconstruction scheme already approved by the share and debenture holders. It was proposed after the scheme had been sanctioned by the court, to circulate a reconstruction balance sheet setting out the effect of the changes. He explained that the less favourable result of the year's trading was due to a slightly lower output and to a further fall in prices. On the other hand, there had been a definite improvement which had gone far to counteract the drop in prices. Considerable progress had been made in modernising the layout and equipment of the company's factories. In reply to questions Mr. Hichens said that if the reconstruction scheme had been in operation the accounts would have about balanced. The scheme would reduce the interest and wipe out bank overdraft. Apart from these financial advantages it would enable them to undertake important schemes for securing efficiency, which at present they were unable to finance. There would be a greater turnover as a result of Messrs. Lazard Brothers' influence in many countries. Messrs. Lazard Brothers were awaiting approval of the scheme before providing the promised capital. The report and accounts were adopted and the retiring directors were reappointed.

Digitized by Google

Burden of Taxation.—Mr. H. G. Williams, late Parliamentary Secretary to the Board of Trade, has stated that at the moment the estimated aggregate income of the country is £4,200,000,000. National taxation on the basis of the Budget takes £718,000,000, and in local rates this year £160,000,000 will be raised. This total of £878,000,000—or, roughly speaking, 21 per cent. of the national income—will be collected in rates and taxes of one kind or another.

Gateshead and District Tramways.—The total revenue for 1929 amounted to £123,999, an increase of £2,594 as compared with the previous year. Expenses, including mortgage and loan interest and £10,000 placed to renewals account (same as in previous year), amounted to £98,483, a decrease of £4,633. Net profit is £25,516, as compared with £18,288 for previous year. Adding £18,895 brought forward, there is £44,411. The directors recommend transferring to sinking fund for redemption of mortgage £5,177, to payment of dividend on 1,261 preference shares at rate of 6 per cent. for year (in respect of which 3 per cent. has been paid) £757, to dividend on 12,000 preference shares at rate of 5 per cent. for year (in respect of which 2½ per cent. has been paid) £6,000, and to dividend on 15,211 ordinary shares at rate of 8 per cent. for year £12,169, carrying forward £20,309.

Railways Act, 1921.—The Minister of Transport has recently made the Southern Railway Order, 1930, authorising the construction of a railway and the acquisition compulsorily or by agreement of lands in the Rural District of Hoo, in the County of Kent, by the Southern Railway Company, and matters incidental thereto.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

Name.	Week ended	Latest Return. 1929	1930	+ or —	Aggregate. Wks	1929-30	+ or —
		£	£	£		£	£
Aberdare U.D.C.	Apr. 22	555	640	+ 85	3	1,935	+ 70
,, Motor Buses	,, 22	253	264	+ 11	3	920	+ 41
,, Total	,, 22	808	904	+ 96	3	2,855	+ 111
Aberdeen Corp.	,, 16	4,249	4 848	+ 599	46⅔	224,684	+ 17,319
Ashton-u-Lyne Corp.	,, 12	834	828	— 6	2	1,655	— 101
,, Motor Buses	,, 12	465	459	— 6	2	928	— 53
,, Trolley Buses	,, 12	270	270	Nil	2	548	— 22
,, Total	,, 12	1,569	1,557	— 12	2	3,131	— 176
Ayr Corporation	,, 19	443	453	+ 10	48	27,521	+ 1,292
Barrow Corporation	,, 12	543	538	— 5	2	963	— 128
,, Motor Buses	,, 12	268	349	+ 81	2	695	— 135
,, Total	,, 12	811	887	+ 76	2	1,658	— 263
Belfast City	,, 18	10,496	11,371	+ 875	2½	29,654	+ 2,272
,, Motor Buses	,, 18	982	1,358	+ 376	2½	3,566	+ 1,032
,, Total	,, 18	11,478	12,729	+ 1,251	2½	33,220	+ 3,304
Birkenhead Corp.	,, 20	1,595	1,496	— 99	3	4,374	— 576
,, Motor Buses	,, 20	2,943	3,374	+ 431	3	9,391	+ 230
,, Total	,, 20	4,538	4,870	+ 332	3	13,765	— 346
Birmingham Corp.	,, 15	26,442	26,716	+ 274	2	57,325	+ 5,384
,, Motor Buses	,, 15	11,638	14,950	+ 3,312	2	31,960	+ 8,843
,, Trolley Buses	,, 15	542	572	+ 30	2	1,233	+ 207
,, Total	,, 15	38,622	42,238	+ 3,616	2	90,518	+ 14,434
Blackburn Corp.	,, 9	1,882	1,774	— 108	1⅔	2,295	— 306
,, Motor Buses	,, 9	Nil	326	+ 326	1⅔	424	+ 424
,, Total	,, 9	1,882	2,100	+ 218	1⅔	2,719	+ 118
Bradford Corporation	,, 12	14,416	14,739	+ 323	2	24,807	— 3,902
Brighton Corporation	,, 20	2,215	2,525	+ 310	29/7	6,738	— 51
Burnley Corporation	,, 19	2,991	3,132	+ 141	...	...	...
,, Motor Buses	,, 19	578	785	+ 207	...	...	...
,, Total	,, 19	3,569	3,917	+ 348	...	...	...
Burton-on-Trent Corp.	,, 20	769	869	+ 100	3	2,531	+ 1,340
Bury Corporation	,, 20	2,162	1,994	— 168	29/7	5,396	— 982
,, Motor Buses	,, 20	353	1,173	+ 820	29/7	3,073	+ 2,004
,, Total	,, 20	2,515	3,167	+ 652	29/7	8,469	+ 1,022
Cardiff Corporation	Mar. 29	7,923	7,286	— 637	51/7	399,403	+ 9,585
Chatham and District	Apr. 17	1,041	1,094	+ 52	15	16,055	+ 777
Chester Corporation	,, 13	402	Nil	— 402	2	Nil	— 826
,, Motor Buses	,, 13	Nil	1,069	+ 1,069	2	1,179	+ 1,179
,, Total	,, 13	402	1,069	+ 667	2	1,179	+ 353
Chesterfield Corp.	,, 21	1,835	2,241	+ 406	3	5,712	+ 472
Colchester Corp.	,, 23	494	709	+ 215	4	2,011	+ 277
Colne Corporation	,, 23	673	928	+ 255	3	2,451	+ 144
Coventry Corporation	,, 20	2,079	2,088	+ 9	3	6,275	— 213
,, Motor Buses	,, 20	1,484	1,847	+ 363	3	5,439	+ 811
,, Total	,, 20	3,563	3,935	+ 372	3	11,714	+ 598
Darlington Corp.	,, 19	949	1,157	+ 208	2⅔	3,029	+ 459
Derby Corporation	,, 19	2,384	2,505	+ 121	3	6,944	— 98
,, Motor Buses	,, 19	590	893	+ 303	3	2,485	+ 736
,, Total	,, 19	2,974	3,398	+ 424	3	9,429	+ 638
Dover Corporation	,, 19	339	386	+ 47	3	1,039	— 10
Dundee Corporation	,, 8	3,277	3,374	— 97	46⅔	160,826	+ 5,545
East Ham Corp.	,, 19	2,220	2,200	— 20	2⅔	6,311	+ 299
Edinburgh Corp.	,, 12	12,911	13,513	+ 602	47⅓	678,159	+ 25,948
,, Motor Buses	,, 12	2,999	3,376	+ 377	47⅓	161,262	+ 18,809
,, Total	,, 12	15,910	16,889	+ 979	47⅓	843,421	+ 44,757
Exeter Corporation	,, 23	856	870	+ 14	4	2,735	— 218
Glasgow Corporation	,, 12	44,114	44,626	+ 512	45	1,996,961	+ 31,446
,, Motor Buses	,, 12	4,921	8,230	+ 3,309	45	291,515	+ 41,698
,, Total	,, 12	49,035	52,856	+ 3,821	45	2,288,476	+ 73,144
Gloucester Corp.	,, 16	479	683	+ 204	2⅔	1,569	+ 329
Grimsby Corporation	,, 19	1,272	1,584	+ 312	3	4,239	+ 655
Halifax Corporation	,, 15	4,122	4,959	+ 837	2⅓	10,590	+ 394
Huddersfield Corp.	,, 19	6,065	6,966	+ 901	3	19,377	— 365
Hull Corporation	,, 19	5,916	5,938	+ 22	3	16,752	+ 436
,, Motor Buses	,, 19	1,294	1,451	+ 157	3	3,966	+ 460
,, Total	,, 19	7,210	7,389	+ 179	3	20,718	+ 896
Ilford Corporation	,, 19	1,469	1,442	— 27	2⅔	4,135	+ 188
Ipswich Corp. Trol.Bus	,, 12	1,186	1,240	+ 54	1⅔	2,203	+ 95
Isle of Thanet	,, 16	447	414	— 33	15½	5,459	— 558
Kilmarnock Corp.	,, 19	433	480	+ 47	48⅔	23,196	+ 1,758
Lancashire Un.	,, 13	2,205	2,176	— 29	14⅓	32,194	— 1,194
,, Motor Buses	,, 13	3,930	4,629	+ 699	14⅓	67,103	+ 9,616
Leeds Corporation	,, 19	18,968	18,888	— 80	2⅔	53,727	+ 2,593
Leicester Corp.	,, 19	8,134	8 221	+ 87	3	23,150	+ 1,260
Lincoln Corp.	,, 13	849	867	+ 18	2	1,650	— 150
Liverpool Corp.	,, 19	29,068	28,820	— 248	2⅔	82,040	+ 2,310
London County Coun.	,, 23	82,548	77,189	— 5,359	3⅔	269,457	— 501
Luton Corporation	,, 16	374	427	+ 53	2⅓	962	+ 2
Maidstone Corp.	,, 17	204	Nil	— 204	2⅔	Nil	— 911
,, Motor Buses	,, 17	259	256	— 3	2⅔	737	— 53
,, Trolley Buses	,, 17	280	562	+ 282	2⅔	1,959	+ 1,053
,, Total	,, 17	743	818	+ 75	2⅔	2,696	+ 89
Manchester Corp.	,, 12	34,111	32,449	— 1 662	2	57,824	— 2,785
,, Motor Buses	,, 12	4,632	8,019	+ 3,387	2	13,885	+ 5,791
,, Total	,, 12	38,743	40,468	+ 1,725	2	71,709	+ 3,006

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS—*Continued.*

Name.	Week ended	Latest Return. 1929	1930	+ or —	Aggregate. Wks.	1929-30.	+ or —
		£	£	£		£	£
Middlesbrough Corp.	Apr. 15	1,057	1,087	+ 30	2⅓	2,302	— 186
,, Motor Buses	,, 15	460	553	+ 93	2⅓	1,203	+ 100
,, Total	,, 15	1,517	1,640	+ 123	2⅓	3,505	— 86
Newcastle-on-Ty.Corp.	,, 19	8,989	8,630	— 359	2⅔	24,228	— 649
,, Motor Buses	,, 19	1,842	2,478	+ 636	2⅔	6,784	+ 1,827
,, Total	,, 19	10,831	11,108	+ 277	2⅔	31,012	+ 1,178
Newport Corporation	,, 12	1,577	1,706	+ 129	2	3,091	+ 34
,, Motor Buses	,, 12	662	812	+ 150	2	1,469	+ 234
,, Total	,, 12	2,239	2,518	+ 279	2	4,560	+ 268
Northampton Corp.	,, 18	1,239	1,076	— 163	2⅓	2,769	— 700
,, Motor Buses	,, 18	429	649	+ 220	2⅓	1,677	+ 498
,, Total	,, 18	1,668	1,725	+ 57	2⅓	4,446	— 202
Nottingham Corp.	,, 17	6,273	5,929	— 344	2⅔	14,105	— 2,209
,, Motor Buses	,, 17	2,146	3,257	+ 1,111	2⅔	7,774	+ 2,223
,, Trolley Buses	,, 17	576	1,234	+ 658	2⅔	2,931	+ 1,470
,, Total	,, 17	8,995	10,420	+ 1,425	2⅔	24,810	+ 1,484
Oldham Corporation	,, 19	3,662	3,444	— 218	4	13,167	— 1,101
,, Motor Buses	,, 19	1,978	2,205	+ 227	4	7,583	— 541
,, Total	,, 19	5,640	5,649	+ 9	4	20,750	— 1,642
Plymouth Corp.	,, 19	3,658	3,528	— 130	2⅔	10,347	+ 143
,, Motor Buses	,, 19	1,805	2,391	+ 586	2⅔	6,604	+ 1,475
,, Total	,, 19	5,463	5,919	+ 456	2⅔	16,951	+ 1,618
Portsmouth Corp.	,, 19	5,629	6,470	+ 841	3	17,825	+ 1,183
Preston Corporation	,, 16	1,640	1,634	— 6	2⅔	3,734	— 314
,, Motor Buses	,, 16	452	499	+ 47	2⅔	1,144	+ 26
,, Total	,, 16	2,092	2,133	+ 41	2⅔	4,878	— 288
Rawtenstall Corp.	,, 20	829	773	— 56	2⅔	2,279	— 183
,, Motor Buses	,, 20	498	680	+ 182	2⅔	1,765	+ 238
,, Total	,, 20	1,327	1,453	+ 126	2⅔	4,044	+ 55
Reading Corporation	,, 17	1,426	1,487	+ 61	3	3,500	+ 3
,, Motor Buses	,, 17	820	974	+ 154	3	2,289	+ 271
,, Total	,, 17	2,246	2,461	+ 215	3	5,789	+ 274
Rochdale Corp.	,, 19	2,953	2,888	— 65	...	7,743	— 797
,, Motor Buses	,, 19	1,399	1,873	+ 474	...	4,627	+ 487
,, Total	,, 19	4,352	4,761	+ 409	...	12,370	— 310
Rotherham Corp.	,, 21	2,467	3,105	+ 638	3	8,630	+ 957
Salford Corporation	,, 20	10,967	11,037	+ 70	2⅔	32,100	+ 209
Sheffield Corp.	,, 19	19,956	20,109	+ 153	2⅔	61,915	+ 853
Southampton Corp.	,, 16	3,114	3,284	+ 170	3	7,538	+ 92
,, Motor Buses	,, 16	625	842	+ 217	3	1,957	+ 458
,, Total	,, 16	3,739	4,126	+ 387	3	9,495	+ 550
Southend-on-Sea Corp.	,, 23	1,981	2,766	+ 785	3⅔	7,252	+ 45
Southport Corp.	,, 19	1,191	1,323	+ 132	2⅔	3,447	+ 67
,, Motor Buses	,, 19	311	404	+ 93	2⅔	1,019	+ 119
,, Total	,, 19	1,502	1,727	+ 225	2⅔	4,466	+ 186
St. Helens Corp.	,, 15	1,738	1,987	+ 249	2⅓	4,297	+ 544
Sunderland Corp.	,, 22	2,171	3,171	+ 1,000	3	9,109	+ 1,906
Swindon Corp.	,, 9	597	925	+ 328	1⅔	1,261	+ 337
Wallasey Corp.	,, 19	1,235	1,166	— 69	2⅔	3,215	— 214
,, Motor Buses	,, 19	1,825	2,079	+ 254	2⅔	5,483	+ 579
,, Total	,, 19	3,060	3,245	+ 185	2⅔	8,698	+ 365
Walsall Corporation	,, 13	3,142	3,545	+ 403	2	6,731	— 324
Walthamstow Corp.	,, 19	2,321	2,319	— 2	2⅔	6,595	— 413
Warrington Corp.	,, 17	845	936	+ 91	3	2,768	+ 97
,, Motor Buses	,, 17	427	517	+ 90	3	1,530	+ 228
,, Total	,, 17	1,272	1,453	+ 181	3	4,298	+ 325
West Ham Corp.	,, 17	5,789	6,340	+ 551	2⅓	15,165	— 67
Wolverhampton Corp.	,, 20	2,686	2,465	— 221	3	6,941	— 1,591
,, Motor Buses	,, 20	3,077	3,542	+ 465	3	10,259	+ 697
,, Total	,, 20	5,763	6,007	+ 244	3	17,200	— 894
York Corporation	,, 16	887	1,010	+ 123	3	2,234	+ 59
,, Motor Buses	,, 16	353	482	+ 129	3	1,126	+ 261
,, Total	,, 16	1,240	1,492	+ 252	3	3,360	+ 320

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

Name.	Week or M'th.	Latest Return. 1928-29.	1929-30.	Aggregate. Wks. or Mths.	1929-30.	In. or Dec.
Anglo-Argentine	Apr. 22	£91,166	£79,626	16 w	£1,346,263	— £63,922
Brazilian Traction $	Mar.	3,928,550	4,047,036	3 m	11,707,823	+ 130,731
British Columbia $	Feb.	1,192,871	1,246,551	8 m	9.852,338	+ 552,577
Buenos Aires Lacroze	Apr. 20	12,995	12,113	42 w	493,868	— 39,563
Burma E. Sup. Co. Rs.	Mar.	68,993	72,758	8 m	511,726	— 23,007
Calcutta ... Rs.	Apr. 19	128,051	109,950	15¼ w	1,892,492	— 155,741
Cape Town	Mar.	30,121	30,087	...	...	...
Carthagena & Herrerias	Mar.	853	1,003	3 m	3,640	+ 1,083
Durban	Feb.	21,848	21,321	7 m	166,874	+ 2,240
East India	Mar.	3,802	3,863	8 m	30,525	+ 768
Kalgoorlie	Jan.	1,531	1,454	1 m	1,454	— 77
La Plata	Dec.	10,300	10,327	12 m	116,149	+ 2,604
Madras (2 weeks) Rs.	Apr. 15	44,210	46,543	14 w	328,559	+ 23,347
Para	Mar.	14,971	14,976	4 m	57,647	+ 281
Port Elizabeth ...	Mar.	7,857	8,127	...	...	...
Rangoon ... Rs.	Mar.	121,246	164,600	3 m	459,810	+ 107,429
Shanghai ... $	Mar.	339,785	377,849	3 m	1,063,722	+ 110,009
Singapore ... ...$	Mar.	133,000	143,000	6 m	798,000	+ 102,000
Winnipeg ... ...$	Feb.	570,895	567,569	2 m	1,196,548	+ 17,687

RAILWAY RECEIPTS.

16th Week ended Apr. 20th	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week.	Inc. or Dec. to Date.
G.W.R.	299,000	+ 79,000	314,000	— 63,000	613,000	+ 16,000	— 130,000
L.M.S.R.	693,000	+ 204,000	733,000	— 169,000	1,426,000	+ 35,000	— 503,000
L.N.E.R.	433,000	+ 111,000	576,000	— 173,000	1,009,000	— 62,000	— 137,000
S.R.	413,000	+ 126,000	88,000	— 22,000	501,000	+ 104,000	— 52,000
Totals	1,838,000	+ 520,000	1,711,000	— 427,000	3,549,000	+ 93,000	— 822,000

ELECTRIC RAILWAYS.

Name.	Week Ended.	Latest Return. 1929.	1930.	+ or —	Aggregate. 1930.	+ or —
London Underground Common Fund Cos.	Apr. 19	290,400	280,400	— 10,000	4,628,000	+ 362,300
Lond. & Sub. Group	,, 19	41,400	41,300	— 100	669,100	+ 64,800
Metropolitan Railway	,, 19	36,000	36,800	+ 800	583,400	+ 19,500
Liverpool Overhead	,, 20	1,530	1,346	— 184	23,601	— 1,337
Mersey Railway	,, 19	4,585	4,510	— 75	75.644	+ 2,181

Digitized by Google

THE
Tramway and Railway World

FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.

Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates:

FOR THE UNITED KINGDOM—Twenty-five shillings per annum.

FOR ALL PLACES ABROAD—Twenty-five shillings per annum. Postage to Canada, 6s.; to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS

LONDON, MAY 3, 1930.

THE PROBLEM OF TICKET LITTER.

Many will join in the wish expressed by Lady Henschel that people who ride in omnibuses would refrain from throwing their tickets into the street. Certainly all tramway and omnibus operators will hope that her ladyship's efforts to abate the littering of the pavement and road at stopping places will meet with success. At present Lady Henschel has taken up the question of omnibus ticket litter only, and she has asked the London General Omnibus Company to place receptacles for used tickets in their omnibuses. For the present the request is not being complied with, but it has led to the management attacking the problem from a new and novel standpoint. The example is one that might well be followed by tramway and omnibus authorities, even though past efforts to eradicate the nuisance have not met with the success that was hoped for. In the opinion of the L.G.O.C. the fitting of boxes for litter would, for the present, be useless, but notices have been painted in the lower and top saloons asking passengers to drop tickets inside the omnibus before leaving, thus avoiding litter in the street. This decision has been communicated to Lady Henschel together with an intimation that, if there is sufficient response to this appeal, receptacles will afterwards be provided. Official indication of the exact motive behind the decision is not available, but there are two conclusions that will bear examination. The most probable is that it would be unwise to incur the expense of fitting thousands of omnibuses with boxes until some indication is gained of the use that will be made of them. The second is that the invitation to litter the floor of the omnibus is likely, ultimately, to make the street litterers ashamed of themselves. Judging by the specimens of paper mosaic work now to be seen on the floors, it appears the public has begun to pay attention to the notice, but the litter will need to be an inch or two deep before one can say that a lasting impression is being made. It would appear, indeed, that at intervals of a few years the public must be given a refresher course of training in this form of tidiness. When pulp was scarce during the war years efforts were made by means of boxes to retrieve the used tickets with little success elsewhere than Glasgow, which city has always managed to net a good sum annually from that source. Really, the public would have no ground for complaint if local authorities were to secure a by-law under which people who cast refuse about the streets became liable to prosecution. Such a regulation has existed for several years in relation to the London parks, and prosecutions have resulted in unpleasant surprises for offenders.

THE ROAD TRAFFIC BILL.

The Standing Committee of the House of Commons on the Road Traffic Bill met for the first time since the Easter Parliamentary recess on April 29. The Chairman, Sir Hugh O'Neill, presided.

On Clause 45, which empowers the Minister of Transport to restrict the use of vehicles or certain classes of vehicles on specified roads, Sir B. Peto moved an amendment which would have the effect of placing the proposed restrictive power in the hands of local authorities. As the clause required that a local inquiry should precede the making of a prohibitory or restrictive order, it was plain, he said, that the matter was one which depended on local information. There were places like the City of Oxford, in which were valuable ancient buildings, and where the local authority would desire to restrict the use of certain streets to particular kinds of vehicles.

Mr. Morrison, Minister of Transport, said that the whole purpose of the clause was to secure the enforcement of certain national standards in regard to the restriction of the use of roads. The position would be that the local authorities would ask for restrictions to be made, and this request would need to be confirmed by the Minister of Transport.

Mr. Graham White said that, as the speed limit as a whole for private cars was to be abolished, there was in some localities a strong feeling that they should be entitled to have local speed limits within their own boundaries.

Mr. Morrison said his view was that a local authority which desired a local speed limit would have to make application in respect of a certain road or roads. He did not think it was likely that the Minister would grant a speed limit for a whole town unless it could be shown that all its streets were in a similar position.

The amendment was defeated by 31 votes to 4.

In the course of further discussion, Mr. Morrison said that the real remedy for vibration was for the local authority to reconstruct the highway. In the case of Oxford the remedy was the construction of a by-pass road and a new bridge. Traffic vibration could be met by proper highways and by a regulation requiring the use of pneumatic tyres. He wished that he could find words adequately to deal with the questions of amenity and noise and danger to ancient buildings. He undertook to think the matter over carefully before the report stage, and he would welcome suggestions.

Clause 52, which authorises local authorities to recover compensation for damage done to roads by heavy extraordinary traffic, was discussed on Thursday, and, with certain amendments, agreed to.

Clause 55, requiring local authorities to provide footpaths wherever they deem these to be necessary or desirable, was also agreed to, the Minister of Transport accepting an amendment stating that it would be the duty of a highway authority to provide wherever possible and deemed necessary adequate grass or other margins by the side of the roads for the safety and accommodation of ridden horses and driven livestock. The Minister pointed out that there would be no power to compel local authorities to provide such margins.

The Committee adjourned until Tuesday.

COMPETITION AT LIVERPOOL.

THE CORPORATION TRAMWAYS AND OMNIBUSES.

Liverpool Tramways and Electric Power and Lighting Committee has instructed the general manager to put into operation a scheme with a view to removing the competition between tramcars and omnibuses operated by the Corporation Tramways Department. The scheme includes the provision as required of motor omnibus services between outlying districts and suburban tramway termini, or other suitable traffic points near to these termini during the slack portions of the day. During the peak loading periods it is proposed to run omnibus services as at present, between the centre of the city and the suburbs, at revised rates of fares on the basis of approximately a penny per mile for the first two miles, then from 1½ to 1¾ miles per penny for the remainder of the journey, the stages to be arranged to terminate at suitable traffic points. The minimum fare on these omnibuses to be 2d.

The inauguration is also proposed of a transfer system enabling passengers to travel by tramcar to the tramway terminus, or a near traffic point, and then to transfer to an omnibus to complete the journey to the omnibus suburban terminus at the present through omnibus fare, thus making provision for a cheap through tramway fare, a higher fare for combined omnibus and tramcar journeys, and a luxury fare for the complete motor omnibus service when an alternative tramway service is available. The special sub-committee is to consider fares and stages generally, and will report on the proposed scheme for the reorganisation of the tramway undertaking.

Digitized by Google

HEAVY MOTOR CAR AMENDMENT ORDER.

NEW WEIGHT LIMIT FOR PUBLIC SERVICE VEHICLES.

The Ministry of Transport has issued the Heavy Motor Car (Amendment) Order, 1930, made by the Minister of Transport. This increases the maximum legal weight to 9½ tons. This decision is the result of prolonged effort by the Society of Motor Manufacturers and Traders and the Municipal Tramways and Transport Association (Incorporated).

The essential portion of the Order is as appended :—

(1) This Order may be cited as " The Heavy Motor Car (Amendment) Order, 1930," and shall come into force on the first day of June, 1930.

*(2) The Heavy Motor Car (Amendment) Order, 1927, shall have effect as though sub-paragraph (i) of sub-division (*a*) of paragraph 5 of Article II thereof were omitted, and the following sub-paragraph were inserted in its place :

" (i) Where the heavy motor car is double-decked and has all its wheels fitted with pneumatic tyres the registered axle weight of any axle shall *not exceed* 6 *tons*, and the sum of the registered axle weights of all its axles shall *not exceed* 9½ *tons ;* in all other cases the registered axle weight of any axle shall not exceed 5½ tons, and the sum of the registered axle weights of all its axles shall not exceed 9 tons."

(3) Nothing in this Order shall—

(*a*) affect the operation prior to the commencement of this Order of the Regulations made by the Heavy Motor Car Orders, 1904 to 1927, or anything duly done or suffered under those Regulations ; or

(*b*) affect any right, privilege, obligation, or liability acquired, accrued, or incurred under those Regulations ; or

(*c*) affect any fine or punishment incurred in respect of a breach of those regulations ; or

(*d*) affect any legal proceeding or remedy in respect of any such right, privilege, obligation, liability, fine or punishment ;

and any such legal proceeding or remedy may be instituted, continued, or enforced, and any such fine or punishment may be imposed as if this Order had not been made.

*The omitted paragraph referred to provided as follows :—

" (*a*) (i) The registered axle weight of any axle of the heavy motor car shall not exceed 5½ tons and the sum of the registered axle weights of all the axles of the heavy motor car shall not exceed 9 tons."

Copies of the Order will be obtainable in a few days from H.M. Stationery Office, Kingsway, W.C.

ASSOCIATED ELECTRICAL INDUSTRIES, LTD.

SIR FELIX POLE ON PROTECTION FOR HOME MARKETS.

In proposing the adoption of the directors' report at the thirtieth annual general meeting of Associated Electrical Industries, Ltd., held on Wednesday at Bush House, London, Sir Felix J. C. Pole (the chairman) pointed out that the general reserve had been increased from £575,000 to £800,000. The profit for the year amounted to £365,961, an increase of £107,189 over the previous year, and the directors recommended a dividend of 8 per cent. on preference shares and 6 per cent. on ordinary shares, both less income tax, carrying forward £109,241.

Having regard to the severe competition prevailing throughout last year, the results might be regarded as satisfactory ; but the directors felt that the profits were not commensurate with the high quality of the company's products and the service rendered to their customers. There was no doubt a wide field for co-operative effort within the industry. The steps taken to co-ordinate the activities of the companies embraced in Associated Electrical Industries had already been fruitful. The works were comparatively well employed during 1929, and output was satisfactorily maintained.

Orders in hand showed an increase over those for the previous year. It was only in the case of price that they were at a disadvantage, due to their having no protected home market in which they could build up quantity production and so get lower costs, to the heavy burden of taxation, and to the lower wages paid by their Continental competitors.

It was most unfortunate that the really vital question of how to protect our home markets should be a matter of political controversy, and he could not help feeling that the solution of the problem was work for an impartial tribunal, which should weigh up facts, figures and arguments and make a recommendation without regard to party cries or vote catching. (Hear, hear.) How effectively the export business had been re-established since the war was demonstrated by the fact that in the last nine years the Metropolitan-Vickers Electrical Company alone obtained business from overseas aggregating £27,000,000.

The report was unanimously adopted.

Medical Test for Manchester Omnibus Drivers.—Manchester Watch Committee has recommended a medical test for omnibus drivers. If the City Council approves of it, the test will probably be extended to the drivers of all licensed vehicles. Ald. Carter said that the recommendation to adopt the test was intended to allay the apprehensions of the travelling public. He himself had licensed a man with one eye, but the time for that had now gone by. Under present conditions an omnibus driver might be an epileptic or a sufferer from asthma. The regulations required tightening up.

MISCELLANEOUS NEWS AND NOTES.

Passes for Pensioners.—West Ham Corporation has decided to grant free tramway passes to old age pensioners on June 1.

The Bristol Tramways Co. and the Midland Red Motor Services have jointly acquired the business of Black and White Motorways.

Merthyr Omnibus Committee has given instructions for the preparation of plans for an extension of their omnibus garage.

Barking Council is seeking sanction to borrow £21,125 for the reconstruction of the tramway track from the Bull Hotel to Loxford Bridge.

" Zoo " Posters of the L.C.C. Tramways.—A striking poster to be seen in London is intended to induce visitors to the Zoological Gardens from North London to travel by tramcar.

Cost of Living Index.—On April 1 the cost of living index figure, compiled by the Ministry of Labour, was 57 per cent. above that of July, 1914, as compared with 61 a month ago and 62 a year ago.

Track Doubling at Croydon.—Croydon Tramways Committee has arranged for the construction of a double track at the cost of £3,500 in connection with the further widening of High-street.

Heavy Oil Engine Omnibus for Walsall.—The Corporation Transport Committee has recommended the purchase of a double-deck omnibus equipped with a heavy oil engine at an estimated cost of £2,000.

Officials' Motor Car Allowances.—Brighton Corporation has appointed a sub-committee to consider the allowances made to officials for motor cars with a view to standardising such payments in the various departments.

Salford Trouble Settled.—The possibility of an omnibus strike at Salford was removed on April 29, when the Corporation decided to pay the full wages of an omnibus driver who had been suspended for alleged dangerous driving.

Tramcar Gearbox Mishap.—An unusual accident occurred at Liverpool on April 28, when one of the gearboxes on a tramcar fell, carrying with it some of the floor of the car, and causing the car to leave the rails. Two passengers suffered slight injuries.

An Exeter Record.—Although the Corporation omnibuses were running over part of the tramway system during the year ended March 31, the Exeter tramways carried more passengers than in any previous year. Since the institution of return fares omnibus passengers also increased.

Wireless Reception and Trolley Omnibuses.—A petition presented by 400 wireless listeners of Doncaster has been presented to the B.B.C., stating that the new trolley omnibuses are interfering with reception. The electrical engineer has a contrivance which he thinks will remedy the trouble.

Withdrawal of a Tramway Service.—The tramway service on the through route which links Rawtenstall with Haslingden and Accrington was withdrawn on April 29. The route which connects the three boroughs is six miles in length, and on this route omnibuses now provide the service in place of tramcars.

London Tramcar Mishap.—At eight o'clock on Monday evening last five tramcar passengers were injured in consequence of a tramcar jumping the metals and colliding with a street refuge near the junction of Great Eastern-street and Shoreditch High-street. They were treated at the local hospital for cuts on the head.

Modernising Tramway Plants.—The Journal of the Municipal Tramways and Transport Association for April contains the essay by Mr. Harry L. Mittell, Assistant Engineer, Edinburgh Corporation Department, on " Modernising Tramway Plant," which was awarded a prize in the essay competition of the Association for 1929.

Fare Reductions at Newcastle.—Newcastle Transport and Electricity Committee has decided to reduce fares for the Gosforth Park circular route from 9d. and 4d. respectively for adults and children to 6d. and 3d. The ordinary fare from the Central station to the grand stand tramway station at Gosforth Park will also be reduced from 6d. to 3½d.

Halifax Cheap Fares Experiment.—The trial of cheap tramway fares at Halifax between 10 a.m. and 12 noon, and 2 p.m. and 4.30 p.m., except on Saturdays, Sundays and public holidays, is to be extended for two months. These fares were introduced at the beginning of April, and during the month it is estimated that the extra number of passengers was over 13,000.

Warning to Tramcar Passengers.—Newcastle Transport and Electricity Committee have placed warning notices in the tramcars : " Never cross in front of the car. Step on to the nearest pavement until you see the road is clear." The Committee considered that such accidents as have occurred recently have been due entirely to persons attempting to cross the road immediately on leaving a tramcar.

New Cars for Leeds.—Leeds Corporation Tramways Committee has decided to proceed with the building of 100 new cars provided the necessary borrowing powers are obtained. Some time ago the Government refused to give a grant towards the construction of 150 new cars. Mr. J. Arnott, the chairman of the Committee, has been discussing with the Minister of Labour the question of a grant to enable Leeds to expedite the construction of the cars.

Road Accidents in 1929.—Sir Arthur Stanley, presiding at the annual general meeting of the Roads Improvement Association, on April 30, said that the report revealed a year of admirable work. He regretted to say, however, that in spite of the intensive work of the Safety First Association, the number of road accidents in 1929 showed an increase over the number in 1928. Actually 6,016 people were killed and 170,000 injured. These appalling figures were unquestionably chiefly due to the lack of sufficient road space.

Digitized by Google

Nottingham and Relief of Rates.—Ald. Turney, chairman of Nottingham Transport Committee, has stated that the undertaking would probably not make a grant to the rates for the past year. In the previous year the £21,000 handed over to the rates was drawn from the reserve and renewals fund, which was badly depleted in consequence. The Committee intended to recoup the fund by at least that amount. The year had been an exceptionally good one.

Front Exit Cars at Newcastle.—A number of Newcastle tramcars are of the front-exit type, and these have been criticised as giving rise to accidents through the carelessness of passengers in alighting in front of approaching vehicles. Alderman R. Mayne, chairman of the Corporation Transport Committee, considers, however, that the number of platform accidents has been greatly reduced by the use of the front exit system. The motorman is able to see the passengers safely off the car in a way which would be impossible for the conductor who has many other duties to occupy his attention. The system of front exits was introduced during the war with the authority of the Board of Trade, and Mr. Mayne said they were so pleased with the working of the system that they recommended it to other cities.

The Licensing of Glasgow Omnibuses.—If certain decisions reached by the magistrates of Glasgow Corporation are put into operation the city will have a monopoly of road passenger transport. The proposals would abolish the right of private omnibuses to pick up passengers who are to be set down again within the city boundary, and would practically abolish the system of recognised stances for omnibuses. It will become a condition of licensing certificates for all omnibuses and stage carriages (other than Corporation omnibuses) that no passengers shall be taken up and set down within the city on any one journey. All stage carriages other than Corporation tramcars, would have to arrive at and depart from the city under the routes mentioned in their certificates, as approved by the magistrates. Certain carriages that at present arrive and depart from private garages in the city would, however, be allowed to continue to do so. It is stated that only certain omnibuses which travel a distance of more than 40 miles from the city would be allowed to use the omnibus stances. Specified stopping places would be laid down for these and other private omnibuses. The proposals are likely to arouse strong opposition, and it is probable that litigation will follow an effort to put them into force. When the Glasgow magistrates met on April 28 as a licensing authority to consider the applications for omnibus certificates, the clerk announced that they were prepared to reconsider the question of stances and any consequent alteration necessary on the routes and stopping places. Mr. Muir Wilson, speaking for a group of private omnibus owners, asked that the whole matter be continued for three weeks to give them time to consider the position. There would be an appeal to a higher Court in connection with the new rules about taking up and setting down passengers. The magistrates agreed to three weeks' delay in connection with the stance regulations, and the routes and stopping places so far as they might be affected by the stances.

PERSONAL.

Mr. H. B. Sharp, rolling stock superintendent of the Rotherham Corporation Tramways, has been appointed transport manager of the Morecambe and Heysham Tramways.

Mr. C. W. F. Cozens has been appointed acting manager, to succeed Mr. J. B. Parker, who has been appointed tramways electrical engineer to the London County Council Tramways.

Mr. J. Wild, whose appointment as manager of the Morecambe Corporation Tramways undertaking was reported in last week's issue, has not accepted the position, and will remain at Todmorden.

Mr. Clement Jackson, general manager of the Plymouth Corporation Transport, has been elected a member of the Council of the Municipal Tramways and Transport Association in place of Mr. H. P. Stokes who recently resigned the position of general manager of the Plymouth undertaking to become general manager of the United Automobile Services, Ltd., and its allied companies.

Mr. Henry Mozeley, who recently retired from the position of manager of Burnley Corporation Tramways, has been elected an honorary member of the Municipal Tramways and Transport Association in recognition of his exceptionally important services in connection with the Association and the tramways and transport industry. At the meeting of the Council on April 11, tributes were paid to the honourable, long and useful services of Mr. Mozeley.

Mr. William Marsh on May 1 completed 25 years' service as general manager and engineer of Brighton Corporation Tramways. He went to Brighton from Glasgow Corporation Tramways in 1900 as assistant engineer to the late Mr. T. B. Holliday, who was manager of the Brighton Tramways from 1900 to 1905, when he was appointed manager of the Hastings Tramways Company. In 1904, Mr. Marsh was appointed assistant manager, and in the following year became manager. Brighton Tramways undertaking was then run at a considerable loss, but Mr. Marsh, after a hard struggle, succeeded in putting the undertaking upon a sound foundation. Difficult times were encountered, but the Brighton system has made great strides in the past ten years, and has become a profitable municipal enterprise. The rolling stock during the past few years has been greatly improved, and the Corporation now has 75 cars. The track as well as the rolling stock has been modernised, and in all respects the system is a credit to the manager. The "Sussex Daily News," in the course of a congratulatory article, says that Mr. Marsh's ambition is to see a revival of the general 1d. fare, and he is convinced that this will be possible within the next four years.

SCOTTISH TRAMWAYS AND TRANSPORT ASSOCIATION.

The annual conference of this Association, as previously announced, will be held at the Atholl Palace Hotel, Pitlochry, on Friday and Saturday, May 23 and 24. The programme is as follows :—

THURSDAY EVENING.—Informal meeting in the drawing-room of the Atholl Palace Hotel.

FRIDAY.—Annual general meeting and conference. Chairman's address.

10 a.m. Paper by Mr. K. G. Fenelon, Ph.D., Lecturer on Economics and Transport, Edinburgh University, on "The Road Traffic Bill : Its Working Out in Practice."

Paper by Mr. J. L. Gunn, general manager of Aberdeen Corporation Transport Department, on "City Transport."

The papers will be followed by discussion.

7 p.m. Official dinner at the Atholl Palace Hotel.

SATURDAY.—Annual general meeting.

INSTITUTE OF TRANSPORT.

The Council of the Institute of Transport has elected the undernamed to take office at October 1 next :—

President.—Sir Arthur Stanley.

Past Presidents to serve on the Council.—Sir Henry P. Maybury, Colonel Sir Joseph Nall, Mr. R. H. Selbie, Mr. Roger T. Smith, Air Vice-Marshal Sir Sefton Brancker, and Sir Josiah C. Stamp, G.B.E.

Vice-Presidents.—Messrs. A. L. Barber, R. Bell, Sidney E. Garcke, R. J. Howley, J. H. Follows, and D. J. Owen.

Honorary Treasurer.—Sir Henry P. Maybury.

Honorary Solicitors.—Messrs. Joynson-Hicks & Co.

FINANCIAL.

The Bank Rate.—The Bank of England minimum rate of discount was reduced on Thursday from 3½ to 3 per cent. This is the fourth consecutive reduction this year and the seventh since October last, when the Bank Rate stood at 6½ per cent. Only at one other period since the war (July 13, 1922, to July 5, 1923) has the rate been so low as three per cent.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended April 30 amounted to £83,470, an increase of £539 compared with the corresponding week of last year. The route length was 165.55 miles, as compared with 166.29 a year ago. From April 1 (the commencement of the financial year) to April 30 (4 2-7 weeks) the total receipts were £353,332, an increase of £18.

Record Year for Tees-side Omnibuses.—The Tees-side Railless Traction Board reports that during the year ended March 31 last a total of 3,753,615 passengers was carried by their vehicles. This was a record for the undertaking, and an increase of 652,887 over the total for the previous year. The receipts at £25,623 showed an increase of £3,247. The mileage of trolley and petrol omnibuses totalled 637,262 vehicle miles, an increase of 99,585.

The London General Omnibus Co. has issued notices of meetings on May 5 of debenture stock holders to authorise the borrowing of £750,000 four and a half per cent. first debenture stock, and £750,000 five per cent. cumulative income debenture stock, both ranking *pari passu* with the existing issues, amounting to £5,561,256. In the notices it is stated that the company in general meeting has authorised the borrowing of £1,500,000, and also authorised the increase of share capital by £750,000 in £10 shares. On December 31 last the capital account was overspent by £1,931,128, and there were outstanding further commitments of £1,045,204. Other commitments have since been incurred on capital account of £116,857, making a total of £3,093,189 required to balance the capital account.

CONTRACTS.

Croydon Education Committee has recommended the purchase of two motor omnibuses at the cost of £2,800.

The India Stores Department has placed an order for 10,000 telegraph insulators with the Equipment & Engineering Co., Ltd.

Manchester Transport Committee has placed an order for two electro-magnetic crack detectors with the Equipment & Engineering Co., Ltd.

Hull Tramways Committee has accepted the tender of Siemens Bros., Ltd., for the supply of feeder cable at £5,279. The tender of the Dunlop Rubber Co., for the supply of motor tyres has also been accepted.

York Tramways Committee has recommended the acceptance of the tenders of Crossley Motors, Ltd., for the supply of six omnibus chassis at £795 each, and Messrs. C. H. Rowe, Ltd., for six omnibus bodies at £475 each.

Coventry Town Council has confirmed the recommendation of the Transport Committee for the reconstruction and doubling of the track in the Burges, one of the City's principal thoroughfares. The work will be started as soon as possible.

Airvac Ventilators, of Darlington, have received an order for 108 Airvacs type "RM" with chromium-plated interior fittings for the inter-urban omnibuses which are now being built for the Provincial Transport Co. of Montreal by the General Motors of Canada.

The English Electric Co., Ltd., has received an order from Ashton-under-Lyne Corporation Tramways for six single-deck petrol omnibus bodies, each to seat 31 passengers and arranged with rear entrance. The bodies will be mounted on Leyland "Lion" chassis.

Digitized by Google

Hull Corporation has accepted the tender of Dennis Bros., Ltd., for a motor fire engine at £1,350; two motor trailer pumps at £280; and a motor utility wagon chassis at £442.

Belfast Tramways Committee, at a meeting on April 24, decided to recommend the purchase of ten new omnibuses in addition to the six double-deck omnibuses already decided upon. It has not yet been determined whether the ten omnibuses shall be double or single decks. Tenders for the building of fifty new tramcar bodies were considered. Two Belfast firms submitted tenders for the construction of ten of the vehicles, and the tender of the Service Motor Works, Ltd., was accepted. The second local tender was not accepted as it was above the prices quoted by the other firms. The bodies for the other forty tramcars will be built by the Brush Electrical Engineering Co., Ltd., of Loughborough.

BUSINESS NOTES.

The Associated Equipment Co., Ltd., has made temporary arrangements for service work and for A. E. C. spare parts to be supplied by the Belfast Omnibus Co., Ltd., University-street, Belfast.

Crossley Motors, Ltd., Sales and Service.—Increasing business in the Southern Counties has led to the establishment of a fully-equipped service station at Crossley Motors London Depot, 50, Page-street, Westminster, S.W.1. Customers in the Southern Counties can, therefore, be assured of prompt and efficient servicing of their vehicles in their own area. A London sales office has also been set up at the same address.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

Name.	Week ended	Latest Return. 1929	1930	+ or —	Wks.	Aggregate. 1929-30	+ or —
		£	£	£		£	£
Aberdare U.D.C.	Apr. 22	555	640	+ 85	3	1,935	+ 70
,, Motor Buses	,, 22	253	264	+ 11	3	920	+ 41
,, Total	,, 22	808	904	+ 96	3	2,855	+ 111
Aberdeen Corp.	,, 23	4,220	4,808	+ 588	47¾	229,492	+ 17,907
Ashton-u-Lyne Corp.	,, 19	868	891	+ 23	3	2,546	— 78
,, Motor Buses	,, 19	475	605	+ 130	3	1,533	+ 77
,, Trolley Buses	,, 19	274	289	+ 15	3	837	— 8
,, Total	,, 19	1,617	1,785	+ 168	3	4,916	— 9
Ayr Corporation	,, 26	547	558	+ 11	49	28,079	+ 1,303
Barrow Corporation	,, 19	536	590	+ 54	3	1,654	— 75
,, Motor Buses	,, 19	263	391	+ 128	3	1,087	+ 263
,, Total	,, 19	799	981	+ 182	3	2,741	+ 188
Belfast City	,, 25	10,760	11,879	+ 1,119	3¾	41,533	+ 3,301
,, Motor Buses	,, 25	1,084	1,351	+ 267	3¾	4,917	+ 1,299
,, Total	,, 25	11,844	13,230	+ 1,386	3¾	46,450	+ 4,600
Birkenhead Corp.	,, 27	1,594	1,632	+ 38	4	6,006	— 538
,, Motor Buses	,, 27	2,940	3,647	+ 707	4	13,038	+ 938
,, Total	,, 27	4,534	5,279	+ 745	4	19,044	+ 400
Birmingham Corp.	,, 22	27,123	26,006	— 1,117	3	83,331	+ 4,268
,, Motor Buses	,, 22	12,142	15,619	+ 3,477	3	47,580	+ 12,321
,, Trolley Buses	,, 22	554	530	— 24	3	1,763	+ 183
,, Total	,, 22	39,819	42,155	+ 2,336	3	132,674	+ 16,772
Blackburn Corp.	,, 23	2,809	2,329	— 480	3¾	6,362	— 2
,, Motor Buses	,, 23	Nil	417	+ 417	3¾	1,152	+ 1,152
,, Total	,, 23	2,809	2,746	— 63	3¾	7,514	+ 1,150
Bradford Corporation	,, 26	14,580	15,513	+ 933	4	53,704	— 3,795
Brighton Corporation	,, 27	2,155	2,774	+ 619	3¾	9,511	+ 567
Burnley Corporation	,, 26	2,924	2,814	— 110	...	...	...
,, Motor Buses	,, 26	600	659	+ 59	...	...	...
,, Total	,, 26	3,524	3,473	— 51	...	...	...
Burton-on-Trent Corp.	,, 27	809	890	+ 81	4	2,991	+ 1,800
Bury Corporation	,, 27	2,094	1,848	— 246	3¾	7,243	— 1,229
,, Motor Buses	,, 27	345	1,043	+ 698	3¾	4,117	+ 2,703
,, Total	,, 27	2,439	2,891	+ 452	3¾	11,360	+ 1,474
Cardiff Corporation	,, 26	7,233	8,734	+ 1,501	3¾	30,164	+ 2,591
Chatham and District	,, 24	1,032	1,204	+ 172	16	17,259	+ 949
Chester Corporation	,, 27	391	Nil	— 391	4	Nil	— 1,609
,, Motor Buses	,, 27	Nil	636	+ 636	4	2,443	+ 2,443
,, Total	,, 27	391	636	+ 245	4	2,443	+ 834
Chesterfield Corp.	,, 28	1,822	2,004	+ 182	3	7,716	+ 654
Colchester Corp.	,, 30	502	580	+ 78	5	2,501	+ 355
Colne Corporation	,, 23	673	928	+ 255	3	2,451	+ 144
Coventry Corporation	,, 27	2,094	2,258	+ 164	4	8,533	— 49
,, Motor Buses	,, 27	1,485	2,038	+ 553	4	7,477	+ 1,365
,, Total	,, 27	3,579	4,296	+ 717	4	16,010	+ 1,316
Darlington Corp.	,, 26	941	1,132	+ 191	3¾	4,162	+ 651
Derby Corporation	,, 26	2,384	2,637	+ 253	4	9,581	+ 154
,, Motor Buses	,, 26	611	935	+ 324	4	3,420	+ 1,061
,, Total	,, 26	2,995	3,572	+ 577	4	13,001	+ 1,215
Dover Corporation	,, 26	328	433	+ 105	4	1,472	+ 95
Dundee Corporation	,, 22	3,255	3,470	+ 215	48½	167,618	+ 5,873
East Ham Corp.	,, 26	2,279	2,340	+ 61	3¾	8,652	+ 393
Edinburgh Corp.	,, 19	12,910	14,150	+ 1,240	48¾	692,308	+ 27,187
,, Motor Buses	,, 19	2,957	3,365	+ 408	48¾	168,028	+ 19,218
,, Total	,, 19	15,867	17,515	+ 1,648	48¾	860,936	+ 46,405
Exeter Corporation	,, 30	846	825	— 21	5	3,560	— 239
Glasgow Corporation	,, 12	44,114	44,626	+ 512	45	1,990,961	+ 31,446
,, Motor Buses	,, 12	4,021	8,230	+ 3,309	45	291,515	+ 41,698
,, Total	,, 12	49,035	52,856	+ 3,821	45	2,288,476	+ 73,144
Gloucester Corp.	,, 23	489	779	+ 290	3¾	2,347	+ 619
Grimsby Corporation	,, 26	1,290	1,585	+ 295	4	5,824	+ 988
Halifax Corporation	,, 22	4,326	6,107	+ 1,781	3¾	16,697	+ 2,174
Huddersfield Corp.	,, 26	6,303	7,657	+ 1,354	4	26,034	— 12
Hull Corporation	,, 26	5,952	5,810	— 142	4	22,562	+ 294
,, Motor Buses	,, 26	1,316	1,474	+ 158	4	5,440	+ 619
,, Total	,, 26	7,268	7,284	+ 16	4	28,002	+ 913
Ilford Corporation	,, 26	1,467	1,497	+ 30	3¾	5,632	+ 208
Ipswich Corp. Trol.Bus	,, 26	1,229	1,383	+ 154	3¾	4,806	+ 398
Isle of Thanet	,, 23	494	909	+ 415	16½	6,368	— 143
Kilmarnock Corp.	,, 26	446	496	+ 50	49½	23,693	+ 1,808
Lancashire Un.	,, 20	2,232	2,308	+ 76	15¾	34,511	— 1,140
,, Motor Buses	,, 20	4,039	5,930	+ 1,891	15¾	73,003	+ 11,360
Leeds Corporation	,, 26	19,128	21,091	+ 1,963	3¾	74,819	+ 4,596
Leicester Corp.	,, 26	8,243	8,452	+ 209	4	31,602	+ 1,445
Lincoln Corp.	,, 27	923	1,068	+ 145	4	3,674	+ 89
Liverpool Corp.	,, 26	29,199	30,406	+ 1,207	3¾	112,447	+ 3,517
London County Coun.	,, 30	82,931	83,470	+ 539	4¼	353,332	+ 18
Luton Corporation	,, 23	378	528	+ 150	3¾	1,490	+ 152
Maidstone Corp.	,, 24	221	Nil	— 221	3¾	Nil	— 1,132
,, Motor Buses	,, 24	260	290	+ 30	3¾	1,026	— 24
,, Trolley Buses	,, 24	299	607	+ 308	3¾	2,567	+ 1,361
,, Total	,, 24	780	897	+ 117	3¾	3,593	+ 205
Manchester Corp.	,, 26	35,021	32,210	— 2,811	4	120,491	— 10,040
,, Motor Buses	,, 26	4,763	8,709	+ 3,946	4	31,170	+ 13,539
,, Total	,, 26	39,784	40,919	+ 1,135	4	151,661	+ 3,499
Middlesbrough Corp.	Apr. 22	1,136	1,163	+ 27	3¾	3,466	— 159
,, Motor Buses	,, 22	475	618	+ 143	3¾	1,821	+ 243
,, Total	,, 22	1,611	1,781	+ 170	3¾	5,287	+ 84
Newcastle-on-Ty.Corp.	,, 26	9,147	9,180	+ 33	3⅞	33,408	— 616
,, Motor Buses	,, 26	1,904	2,591	+ 687	3⅞	9,375	+ 2,514
,, Total	,, 26	11,051	11,771	+ 720	3⅞	42,783	+ 1,898
Newport Corporation	,, 19	696	835	+ 139	3	2,304	+ 373
,, Motor Buses	,, 19	1,609	1,628	+ 19	3	4,719	+ 295
,, Total	,, 19	2,305	2,463	+ 158	3	7,023	+ 668
Northampton Corp.	,, 25	1,118	1,233	+ 115	3¾	4,002	— 585
,, Motor Buses	,, 25	601	754	+ 153	3¾	2,432	+ 652
,, Total	,, 25	1,719	1,987	+ 268	3¾	6,434	+ 67
Nottingham Corp.	,, 24	6,526	5,712	— 814	3½	19,817	— 3,022
,, Motor Buses	,, 24	2,188	3,228	+ 1,040	3½	11,002	+ 3,262
,, Trolley Buses	,, 24	585	1,186	+ 601	3½	4,117	+ 2,070
,, Total	,, 24	9,299	10,126	+ 827	3½	34,936	+ 2,310
Oldham Corporation	,, 26	3,600	3,559	— 41	5	16,726	— 1,142
,, Motor Buses	,, 26	1,980	2,274	+ 294	5	9,857	— 247
,, Total	,, 26	5,580	5,833	+ 253	5	26,583	— 1,389
Plymouth Corp	,, 26	3,650	3,681	+ 31	3⅝	14,029	+ 175
,, Motor Buses	,, 26	1,857	2,410	+ 553	3⅝	9,015	+ 2,028
,, Total	,, 26	5,507	6,091	+ 584	3⅝	23,044	+ 2,203
Portsmouth Corp.	,, 26	5,410	7,786	+ 2,376	4	25,669	+ 3,616
Preston Corporation	,, 23	1,697	1,873	+ 176	3¾	5,607	— 138
,, Motor Buses	,, 23	463	578	+ 115	3¾	1,723	+ 142
,, Total	,, 23	2,160	2,451	+ 291	3¾	7,330	+ 4
Rawtenstall Corp.	,, 27	867	748	— 119	3½	3,028	— 302
,, Motor Buses	,, 27	500	639	+ 139	3½	2,404	+ 377
,, Total	,, 27	1,367	1,387	+ 20	3½	5,432	+ 75
Reading Corporation	,, 24	1,433	1,403	— 30	4	4,903	— 27
,, Motor Buses	,, 24	891	1,069	+ 178	4	3,358	+ 369
,, Total	,, 24	2,324	2,472	+ 148	4	8,261	+ 342
Rochdale Corp.	,, 26	2,096	2,841	— 154	...	10,584	— 953
,, Motor Buses	,, 26	1,405	1,813	+ 408	...	6,441	+ 806
,, Total	,, 26	4,401	4,654	+ 254	...	17,025	— 57
Rotherham Corp.	,, 28	2,614	3,147	+ 533	4	11,777	+ 1,190
Salford Corporation	,, 27	10,781	11,759	+ 978	28	43,859	+ 1,140
Sheffield Corp.	,, 26	20,577	22,210	+ 1,633	3⅝	84,125	+ 2,485
Southampton Corp.	,, 23	3,112	3,615	+ 503	4	11,153	+ 581
,, Motor Buses	,, 23	632	969	+ 337	4	2,927	+ 798
,, Total	,, 23	3,744	4,584	+ 840	4	14,080	+ 1,379
Southend-on-Sea Corp.	,, 30	1,945	2,217	+ 272	4¼	9,470	+ 318
Southport Corp.	,, 26	1,201	1,478	+ 277	3⅝	4,925	+ 344
,, Motor Buses	,, 26	315	494	+ 179	3⅝	1,513	+ 298
,, Total	,, 26	1,516	1,972	+ 456	3⅝	6,438	+ 642
St. Helens Corp.	,, 22	1,818	2,380	+ 562	3¼	6,677	+ 1,106
Sunderland Corp.	,, 29	2,174	2,738	+ 564	4	11,852	+ 2,475
Swindon Corp.	,, 23	623	1,123	+ 500	3⅜	3,238	+ 1,107
Wallasey Corp.	,, 26	1,223	1,340	+ 117	3½	4,555	— 97
,, Motor Buses	,, 26	1,773	2,465	+ 692	3½	7,948	+ 1,271
,, Total	,, 26	2,996	3,805	+ 809	3½	12,503	+ 1,174
Walsall Corporation	,, 20	3,248	3,680	+ 432	3	10,411	+ 108
Walthamstow Corp.	,, 26	2,326	2,487	+ 161	3½	9,082	— 253
Warrington Corp.	,, 24	851	866	+ 15	4	3,634	+ 112
,, Motor Buses	,, 24	431	495	+ 64	4	2,025	+ 292
,, Total	,, 24	1,282	1,361	+ 79	4	5,659	+ 404
West Ham Corp	,, 24	5,903	6,096	+ 193	3⅜	21,261	+ 125
Wolverhampton Corp.	,, 20	2,686	2,465	— 221	3	6,941	— 1,591
,, Motor Buses	,, 20	3,077	3,542	+ 465	3	10,259	+ 697
,, Total	,, 20	5,763	6,007	+ 244	3	17,200	— 894
York Corporation	,, 23	966	1,166	+ 200	4	3,400	+ 258
,, Motor Buses	,, 23	352	553	+ 201	4	1,680	+ 462
,, Total	,, 23	1,318	1,719	+ 401	4	5,080	+ 720

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

Name.	Week or M'th.	Latest Return. 1928-29.	1929-30.	Wks. or Ms.	Aggregate. 1929-30.	In. or Dec.
Anglo-Argentine	Apr. 29	£90,815	£81,014	17 w	£1,427,277	— £73,723
Brazilian Traction $	Mar.	3,928,550	4,047,036	3 m	11,707,823	+ 130,731
British Columbia $	Feb.	1,192,871	1,246,551	8 m	9,852,338	+ 552,577
Buenos Aires Lacroze	Apr. 27	12,128	11,349	43 w	505,217	— 40,342
Burma E. Sup. Co. Rs.	Mar.	68,993	72,758	8 m	511,726	— 23,007
Calcutta ... Rs.	Apr. 26	124,792	105,093	16½ w	1,997,585	— 175,440
Cape Town	Mar.	30,121	30,087	...	...	...
Carthagena & Herrerias	Mar.	853	1,003	3 m	3,640	+ 1,083
Durban	Mar.	24,442	23,662	8 m	190,536	+ 1,460
East India	Mar.	3,892	3,863	8 m	30,525	+ 768
Kalgoorlie	Jan.	1,531	1,454	1 m	1,454	— 77
La Plata	Dec.	10,300	10,327	12 m	116,149	+ 2,604
Madras (2 weeks) Rs.	Apr. 30	40,038	43,344	16 w	371,903	+ 26,653
Para	Mar.	14,971	14,976	4 m	57,647	+ 281
Port Elizabeth ...	Mar.	7,857	8,127	...	...	...
Rangoon ... Rs.	Mar.	121,246	164,600	3 m	459,810	+ 107,429
Shanghai ... $	Mar.	339,785	377,849	3 m	1,003,722	+ 110,009
Singapore ... ...$	Mar.	133,000	143,000	6 m	798,000	+ 102,000
Winnipeg ... ...$	Feb.	570,895	567,569	2 m	1,196,548	+ 17,687

RAILWAY RECEIPTS.

17th Week ended Apr. 27th	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week	Inc. or Dec. to Date.
G.W.R.	259,000	+ 35,000	237,000	— 131,000	496,000	— 96,000	— 226,000
L.M.S.R.	527,000	+ 32,000	650,000	— 203,000	1,177,000	— 171,000	— 674,000
L.N.E.R.	364,000	+ 45,000	576,000	— 142,000	940,000	— 97,000	— 234,000
S.R.	325,000	+ 31,000	93,000	— 21,000	418,000	+ 10,000	— 42,000
Totals	1,475,000	+ 143,000	1,556,000	— 497,000	3,031,000	— 354,000	— 1,176,000

ELECTRIC RAILWAYS.

Name.	Week Ended.	Latest Return. 1929.	1930.	+ or —	Aggregate. 1930.	+ or —
London Underground						
Common Fund Cos.	Apr. 26	295,600	312,100	+ 16,500	4,940,100	+ 378,800
Lond. & Sub. Group	,, 26	41,800	46,500	+ 4,700	715,600	+ 69,500
Metropolitan Railway	,, 26	37,800	39,100	+ 1,300	622,500	+ 20,800
Liverpool Overhead	,, 27	1,532	1,701	+ 169	25,302	— 1,168
Mersey Railway ...	,, 26	4,459	4,635	+ 196	80,279	+ 2,377

Digitized by Google

THE
Tramway AND Railway World

FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.
Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates:

FOR THE UNITED KINGDOM—Twenty-five shillings per annum.

FOR ALL PLACES ABROAD—Twenty-five shillings per annum Postage to Canada, 6s.: to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS

LONDON, MAY 10, 1930.

FUEL OIL FOR PETROL OMNIBUSES.

Operators of petrol omnibuses will be interested in reports by Mr. J. A. Queeney, of the Philadelphia Rapid Transit Co., on the use of low-grade fuel oil in the petrol engines of over five hundred omnibuses. Mr. Queeney first set forth the favourable results before the Philadelphia Engineers' Club in January, 1929, and recently he has confirmed that report after continued operation with the Godward gas generator. This device is a British invention and is manufactured by the Godward Gas Generator Co. The saving in the cost of fuel amounts to approximately 29 per cent. Although the engine requires added equipment to burn the fuel oil, either oil or petrol can be used when it is installed. Thus, if an omnibus runs out of fuel oil, the tank may be filled with petrol, and without any adjustment the vehicle will proceed, with no perceptible change in its performance. Omnibuses that have run more than 250,000 miles have not been found to require additional engine maintenance. At first a little trouble was experienced with exhaust smoke, particularly when the engine was idling. This trouble was remedied by removing the throttle valve from the customary location in the carburetter below the gas generator to a point where the mixture enters the intake manifold. Petrol-electric omnibuses have also been equipped with the device, resulting in an increase in the horse-power output of the engines of 15 per cent., and greatly improving the performance of the vehicles, especially on hills. The additional output has enabled the scheduled speed of the petrol-electrics to be increased without any increase in petrol consumption. The Godward gas generator consists of an aluminium pot in which are set a number of stationary thin curved plates radiating from a central core. The lower edges of the plate are in contact with the aluminium pot, which is heated by the exhaust of the engine. The fuel is drawn from a standard carburetter through the inside of the pot over the surface of the warm plates, and is converted into a dry gas. It then passes through the intake manifold into the cylinder for burning. The heated deflector plates have a total surface of 2,000 sq. ins., so that complete conversion to a hot gas is assured. As designed for the use of fuel oil the device has incorporated in it an electrical heating unit, which is used during the starting period only. By means of this unit the temperature of the fuel is raised sufficiently to start the engine. This heating unit receives its energy from the storage battery and consumes 80 amperes at 12 volts for about one minute, which is not longer than the time required for starting the engine when run on petrol. In addition to the Godward device a special intake manifold is used. It has no sharp bends, pockets or hot spots, and its form of construction allows an increase in the quantity of mixture entering the cylinders, thus increasing the volumetric efficiency of the engine.

TRANSPORT MONOPOLIES AT GLASGOW.

Councillor Dollan, convener of the Glasgow Transport Committee, was asked, at a meeting of the city council on May 1, if the railway companies had offered to share an omnibus service monopoly with the Corporation and why the offer was not accepted. He replied that the Transport Committee had refused to accept the proposal of the companies because they could only get a monopoly on condition that the tramway fares should come under an outside authority. The Committee believed that tramway fares should be controlled by their own authority. There was a danger, if they entered such a scheme, of tramway fares being increased. The railway companies had already suggested that the maximum tramcar fare of 2d. should be increased. The companies were operating their powers to form a semi-monopoly, and in the near future transport users in Glasgow would be asked to choose between a Corporation monopoly and a monopoly of the railway companies.

The Town Clerk, replying to various questions, stated that there were 1,196 omnibuses owned by private companies plying for hire in the city. Of these, 1,124 were owned by firms having headquarters outside the city. So far as they could ascertain, those companies had paid £1,410 during the current year in rates to the city. The amount paid in rates for the current year by the Municipal Transport Committee was £134,000. The annual cost of traffic control police was given approximately as £60,000, half of which was borne by the Corporation and half by the Government.

The recent action of the Glasgow magistrates in seeking to impose new conditions for the licensing of omnibuses has aroused a protest from firms operating omnibus services in Glasgow and the West of Scotland. A representative of a prominent firm described the position as "chaotic and absurd." It is asserted that the magistrates are biased, and Mr. S. T. Adamson, secretary of the Glasgow General Omnibus and Motor Services, Ltd., has expressed the opinion that if a plebiscite of the travelling public of Glasgow were taken on the subject, a monopoly of passenger transport would never be granted to the Corporation. The magistrates, Mr. Adamson maintained, have looked at the matter from their own point of view. While they were entitled to have their present licensing control of omnibuses going into the city, the Corporation obtained their power from Parliament on the assumption that municipal and privately-owned omnibuses would be treated absolutely on a par. The magistrates were now doing exactly the opposite. There is at present before Parliament a Bill of the Corporation asking sanction for a monopoly.

BELFAST ROLLING STOCK PROGRAMME.

At a recent meeting of Belfast Tramways Committee, Mr. W. Chamberlain, the general manager, reported that two local firms had submitted tenders for fifty tramcar bodies. One of these—the Service Motor Works, Ltd.—was the lowest, and they offered to make ten bodies at the price quoted by them. The manager recommended that contracts be placed as follows: Ten car bodies, the Service Motor Works, Ltd., at £1,500 each, including the sum of £100 per body for contingent work; forty car bodies, the Brush Electrical & Engineering Co., Ltd., Loughborough, at £1,697 10s. each, including the sum of £100 per body for contingent work.

Councillor McClure, chairman of the Committee, expressed regret that the general manager had been unable to place locally more of the contracts. The Committee had extended special facilities for having the tramcars and omnibuses built in Belfast. They asked for tenders for whole tramcars or omnibuses, for fifty tramcar trucks, and for fifty tramcar equipments. Similar proposals were made with regard to tenders for omnibuses. The Committee had been anxious to place the contract for bodies or any portion of them that could be built in Belfast, but they were dealing with the ratepayers' money, and they could not give a contract to a firm which was going to charge them half as much again. During the last twelve months the tramway rolling stock had received attention such as it had never had at any time. When the general manager came to Belfast he found that cars had not been inside the depot for painting for years. Mr. Chamberlain's plan was that every car should pass through the repair shops once a year.

The Council has decided to apply to the Minister of Home Affairs for Northern Ireland for sanction to loans of £50,327 for the provision of omnibuses, £110,000 for the provision of tramcars, and £50,000 for the reconditioning of tramcars.

Digitized by Google

THE ROAD TRAFFIC BILL.

The Standing Committee of the House of Commons, which is considering the Road Traffic Bill, met on Tuesday and Thursday to consider the powers and duties of the Traffic Commissioners who will be appointed in the traffic areas which the Bill creates. Clause 60 provides for the appointment of three Commissioners in each area, who will issue licences and exercise other powers under the general direction of the Ministry of Transport.

Lieut.-Col. Ashley moved the omission of the word "general" which qualifies "direction" in the clause. The Commissioners, he said, ought not to be subject to the specific directions of the Minister. As Clause 60 stood, the Minister would be put in the impossible position of having to answer in Parliament for the proper administration of that part of the Act without having power to require the Commissioners to obey his rulings.

Mr. Morrison, Minister of Transport, said the amendment seemed to imply a misreading of the intention of that part of the Bill. The Minister of Transport would appoint the staff of the Commissioners and the technical officers, fix their salaries, and so on, and that was clearly necessary in order that the staffs should be up to Civil Service standards. He had no intention as a Minister to direct the Commissioners on every point of their duty; he would not be answerable in Parliament for their specific actions. He would not be answerable for questions, for example, as to whether the Commissioners in an area did right in granting or refusing licences; he could only answer for the general actions of the Commissioners. He desired that they should act on certain national principles prescribed by the Ministry, but without assistance. With these broad principles, they should be perfectly free and independent to grant or refuse licences, or to attach conditions or to exercise their own judgment in judicial capacity without meticulous interference by the Minister, who wished them to conform to a national standard of administration in the co-ordination of transport, but at the same time to be free to judge such matters on their merits. There would be a right of appeal to the Minister, who would thus be enabled to enforce national standards.

Colonel Ashley withdrew his amendment.

In the course of further discussion, Mr. Morrison said the Minister would be able to appoint a deputy to act in any area. Commissioners were not to have jurisdiction in areas other than that for which they were appointed. If, however, there was any doubt as to their precise position in respect of areas, he would consider an amendment to make the wording of the clause clearer.

In the course of a discussion on the clause providing that any person appointed as a Commissioner should be required, before appointment, to declare whether he was or had been in any way financially interested in a transport undertaking within the area, Colonel Ashley said that in fairness the same conditions ought to be applied to public as to private transport undertakings, and he considered that councillors in county boroughs ought to be kept off the traffic boards.

Mr. Morrison proposed an amendment to provide that no member of the House of Commons should be eligible for appointment as a Commissioner, and Mr. Remer moved that this disqualification should be extended to members of the House of Lords. Mr. Morrison's proposal to exclude members of the House of Commons was agreed to, and Mr. Remer's amendment to exclude members of the House of Lords was rejected.

In reply to Colonel Ashley, Mr. Morrison said it was not intended that the position of the two nominated Commissioners should be places of profit in the ordinary sense of the term. It was undesirable that he should state the salary proposed for the Chairman of Commissioners before he had consulted the Chancellor of the Exchequer, but it should be substantial in order to command the services of men of ability, and to raise them above the possibility of bribery.

Clause 60 with amendments was agreed to.

On Thursday the Committee considered further clauses. On Clause 69, which requires the operator of a stage or express carriage to hold a road service licence, several amendments were proposed and withdrawn. Colonel Ashley said the Commercial Motor Users' Association contended that it would be difficult to frame the time-tables and fare notices that the clause required. Mr. Morrison, Minister of Transport, pointed out that occasional road services ought to be placed under public control as much as the regular services. He could not see that there would be any difficulty in submitting time-tables. There was provision for occasional licences being issued.

THE POWERS OF MUNICIPALITIES.

Colonel Ashley reminded the Committee that one of the most important parts of the Bill would be the clause in regard to transport powers of municipalities, which the House of Lords had deleted and which the Minister intended to have reinserted. He wished to know whether the clause would apply to the municipal services. Mr. Morrison replied that it was intended to put municipal services in a position of equality—neither more nor less—than private enterprise services.

Mr. Leach said the large municipalities were very uneasy with reference to this clause as they thought it would take away certain of their powers conferred by Acts of Parliament.

Mr. Morrison said the municipal authorities had raised the point that as they were to lose their licensing powers they ought to be given some protection in their own boundaries. The line he had taken was that so far as the Commissioners were concerned municipal and private undertakings should be placed in the same position. If that were not done difficulties would arise with regard to the co-ordination of transport. He suggested that the discussion be postponed until the Committee reached Part V of the Bill.

In regard to the position of companies which had monopoly powers, Mr. Morrison said the whole question was now being considered. He desired to secure a co-ordinated national system of transport, and that could not be obtained if there were to be permanent holes in the system. Mr. Morrison opposed an amendment to eliminate words in the clause which required the Commissioner, in considering the issue of road service licences, to have regard to all forms of passenger transport, including railways. He contended that it would be undesirable to have excessive transport. This would be bad for the country, bad for capital, and cause sweated labour. They could not have a reckless competition between railways and road transport.

The amendment was negatived.

Mr. Morrison moved the omission of part of the clause which provides that conditions on which persons are employed shall not be such as to endanger the safety of the public or impair the position of the services. His intention, when inserting these words, was, he said, that the services should not be manned by inadequately paid people. As these words would be difficult to apply, he felt it would be better to omit them and at a later stage to face the question of inserting the observance of a fair wages resolution by the House of Commons, as one of the conditions on which the road service licences would be granted.

The clause as amended was then agreed to, and the Committee adjourned until Tuesday.

MISCELLANEOUS NEWS AND NOTES.

Walsall Transport Committee has recommended the purchase of additional motor omnibuses at an estimated cost of £30,000.

To Test Public Vehicle Brakes.—Leeds Watch Committee is considering the purchase of a brake-testing apparatus, etc., for public service vehicles.

New Cars for Leeds.—Leeds Tramways Committee has directed that specifications be prepared for 100 new cars to be supplied over a period of two years.

Passes for Councillors.—Birkenhead Tramways Committee has recommended the granting of free passes on the tramcars and omnibuses to members of the Town Council.

Sunday Car Service Withdrawn.—Derby Tramways Committee has withdrawn the tramway service on the Burton and Uttoxeter roads on Sundays only, and have replaced it with an omnibus service.

Passes for Wigan Councillors.—Wigan Council has decided that, owing to the increased demand upon the time and services of members of the Council, a free pass shall be granted to the members to travel on the Corporation omnibuses and tramcars.

Trolley Omnibuses for Rochdale.—The Select Committee of the House of Commons has passed the Rochdale Corporation Bill, which provides powers for the substitution of some of the tramways by omnibuses, and the protection of local routes from indiscriminate competition.

Passes for Old-Age Pensioners at Liverpool.—Liverpool City Council has confirmed the proposal of the Tramways Committee that old-age pensioners of 70 years and over shall be carried free on the Corporation tramways and omnibuses for an experimental period of three months.

New Inter-Urban Omnibus Service.—Tramcars were run for the last time at Rawtenstall on May 1. The last car was driven out of service by the Mayors of Accrington and Rawtenstall, whose Corporations have been running the service jointly with Haslingden. Omnibuses have been substituted.

Municipal Transport Hire.—A special committee has been appointed by Sheffield Corporation to consider and to report to the Council on the question of transport hire by various departments of the Corporation, and especially as to the advisability of establishing a central haulage department.

Motor-Coach Station at Bristol.—The Bristol Tramways and Carriage Co. and the Bristol Greyhound Co. propose to erect a motor-coach station in Prince-street, Bristol, which will be provided with all facilities for the convenience of travellers, particularly those using long-distance coaches from London, Liverpool, Torquay, Bournemouth, etc.

Trolley Omnibuses for Ossett and Dewsbury.—At a meeting of the General Purposes Committee of Ossett Corporation it was reported that a joint meeting of representatives of the Dewsbury and Ossett Corporations had agreed to the proposal of the National Electric Construction Co., Ltd., that trolley omnibuses should be substituted for the tramways between Dewsbury and Ossett, and also the Earl Sheaton line, subject to satisfactory terms and conditions being arranged between the Corporations and the company.

Proposed Protection for Glasgow Tramways.—On May 7 a Select Committee of the House of Commons began consideration of the Glasgow Corporation Bill, which, among other things, seeks to confer on the Corporation monopoly powers in regard to street passenger transport, both inside the city and outside of it along tramway routes. On the opening day Sir Lynden Macassey, on behalf of the promoters, announced an important concession. He said that the Corporation desired to do nothing unreasonable so far as persons conducting local omnibus services were concerned. The Corporation had decided to move an amendment to the Bill which would have the effect of confining the monopoly within the city boundaries. Private omnibus services, conducted exclusively on the tramway routes, would be allowed to continue, but would not be allowed to pick up or set down the same passengers within the city boundary.

Digitized by Google

Diesel Engine Test at Leeds.—At a recent meeting of Leeds Tramways Committee, Councillor Graham Ford (deputy-chairman) and Councillor Winn were appointed to consider the offer made on behalf of Gardiner & Sons for the carrying out of tests of a Diesel engine by the department for motor omnibus purposes.

Extension of Plant at Sheffield.—The existing plant of the Sheffield Corporation Electricity Works is insufficient to give an adequate supply of electricity for the tramway system, and the Committee has agreed to an extension of sub-stations in Filey-street and Greystones-road. The estimate of costs includes £2,530 for building and £15,820 for plant, mains, and apparatus.

Cheap Car Fares in Outer London.—On May 1 the London United Tramways introduced cheap fares on the Shepherd's Bush and Uxbridge route. These tickets are on weekdays after 10 a.m., excepting public holidays, and all day on Sundays, and are available for return any time on day of issue. Where ordinary single fare is 7d. or 8d., the cheap return will be 1s.; where ordinary single fare is 9d. or 10d., the cheap return will be 1s. 3d.; where ordinary single fare is 11d. or 1s., the cheap return will be 1s. 6d.

Tramway Authorities and London Traffic.—At a meeting of Ilford Tramways Committee a letter was read from West Ham Corporation intimating that it was desirable that the four authorities —West Ham, East Ham, Walthamstow and Ilford—should meet to discuss generally the statement made by the Minister of Transport on the question of the reorganisation of London traffic, with a view to endeavouring to arrive at some common ground as to the action which should be taken in connection therewith by the tramway-owning authorities in the Greater London area. The Committee requested the chairman, the vice-chairman, and the tramways manager and engineer to attend the suggested conference and to submit a report thereon.

Lancashire and Cheshire Transport Authorities' Council met in Manchester on May 3. The meeting was private, but it is understood that the Road Traffic Bill was discussed. Alderman W. Greenwood, chairman of Salford Tramways Committee, was elected chairman, and Mr. W. E. Turner, chairman of the Bury Tramways Committee, vice-chairman. Mr. J. Barnard, general manager, Bolton Transport Committee, is secretary. The Council represents thirty-three municipal authorities operating tramway and omnibus systems in Lancashire and Cheshire. Meetings are held whenever circumstances require. The Council deliberates and makes recommendations to the Municipal Tramways and Transport Association or to municipal authorities concerned in the case of local matters.

Charing Cross Bridge Scheme.—The Private Bill Committee of the House of Commons, which has been considering the L.C.C. (Charing Cross Bridge) Bill, rejected the Bill on Tuesday. In a printed statement submitted on behalf of the L.C.C., it was stated that the Council were convinced that there was no other practicable site for the new station than the Lion Brewery site which had been adopted in the scheme of the Bill. Sir Henry Cautley, the chairman, in announcing the decision of the Committee, said that they remained of opinion that putting the station at the bridge-head would stop the development of Lambeth and was a blot that they could not accept. Photographs of the model showing clearly the proposed location of the station and other details of other parts of the station were given in our issue of April 17.

Lytham and St. Anne's Tramways.—The Committee of Inquiry appointed to investigate the position of the Lytham St. Anne's Tramway undertaking has submitted a report to the Town Council. Upon the recommendation of the committee, Mr. J. C. Fairchild, borough electrical engineer, was on October 28 appointed temporarily to fill the position of tramways manager. The work of the administration and technical department has been reorganised, and the committee anticipate that the work will be carried out in future at considerably reduced expenditure. The manager has been instructed to carry out only urgent repairs to the permanent way. Attention is being given to the overhead and electrical equipment and the work of repair is progressing satisfactorily. Apart from the general reorganisation which has had effect upon the traffic as a whole, the committee state that various improvements have been made.

Front-Exit Cars at Newcastle.—At a meeting of Newcastle City Council on May 7 the front-exit tramcars, which have been in use in Newcastle for many years, were discussed. It was claimed by some speakers that the use of the front exit was the cause of accidents. Alderman R. Mayne, chairman of the Tramways Committee, said that the Committee were anxious to provide in every way for the safety of the citizens, and it was for that reason largely that the front-exit system had been adopted. They had at present 154 front-exit cars and 16 rear-exit cars. Before the change-over was made in 1916, the average annual amount paid in damages by the Transport Committee was £2,111, and for the four years following the average was £959. Accidents on the tramways had practically disappeared, but the growth of general traffic had increased the number of street accidents. People must, said Alderman Mayne, use their judgment when leaving the tramcars, and crossing roads. They did not sufficiently realise the changed conditions of the roads. Accidents occurred, not from getting off the cars, but from crossing the street without due care on the part of the passengers and motorists overtaking them. The Gateshead Tramway Company, Alderman Mayne declared, would not change from the front-exit system. Their cars were interchangeable with those of the Newcastle Corporation, and if they had two systems confusion would be worse confounded. He agreed, however, to a conference on the subject between the Transport and Watch Committees.

FINANCIAL.

Eastbourne Omnibus Department.—The approximate net working profit on the Eastbourne Municipal Omnibus Service for the year ending March 31 was £3,823.

Another Melbourne Tramway Electrified.—Melbourne Tramways Board has been authorised by the Government to raise a loan of £200,000 for the conversion of the Brunswick-street tramway to electric traction.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended May 7 amounted to £83,655, an increase of £1,242 compared with the corresponding week of last year. The route length was 165.55 miles, as compared with 166.29 a year ago. From April 1 (the commencement of the financial year) to May 7 (5 2-7 weeks), the total receipts were £437,391, an increase of £1,239.

Municipal Transport Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended April 19 give total receipts of £408,093, or £10,555 more than in the corresponding week of last year. The aggregate receipts for three weeks amounted to £1,226,473, an increase of £39,061 over the corresponding period of last year.

Swansea Improvements and Tramways Company.—The revenue for 1929 was £135,062 (against £136,546). After making the usual appropriations, including £20,000 for renewals, the surplus is £9,865, plus £5,185 brought forward. The preference dividend takes £2,598, and a dividend of 6 per cent. is to be paid on the ordinary shares. The renewals fund has been charged with £19,084 expended on renewals of permanent way and cars. After deducting this and crediting the £20,000 from revenue, the fund shows credit of £52,401.

PERSONAL.

Mr. P. J. Pringle, chief engineer and manager to the Electric Supply Co., of Victoria, and Mrs. Pringle, are travelling to London, via Spain and France, and expect to arrive about the middle of May. Mr. Pringle expects to spend some ten weeks in this country. His address in England will be c/o The Electric Supply Co., Royal Liver Buildings, Liverpool.

Mr. G. Cardwell, general manager of the North-Western Road Car Co. since that undertaking was formed by the British Automobile Traction Co., has received an appointment with Thomas Tilling, Ltd., London. He is succeeded by Mr. J. W. Womar, his chief assistant. Other positions which Mr. Cardwell has filled include those of general manager of Hartlepool Electric Tramways Co., Devonport and District Tramways Co., and Aldershot and District Traction Co.

Mr. Dane Sinclair, chairman of the British Insulated Cables, Ltd., and a director of various important cable construction and electric supply companies, died on Tuesday at his residence at Weybridge at the age of 78. Mr. Sinclair had been associated with the British Insulated Cable Co. for a long period, first as general manager and then as managing director, and latterly as chairman.

We regret to record the death of **Alderman J. E. Pendleton,** for over 28 years a member of the Nottingham City Council and twice Mayor of the city. He had been ill for over a year. He was at one time organising secretary for the Nottingham area of the Tramway and Electrical Workers' Union, which subsequently became the Transport and General Workers' Union. For many years he was a member of the Tramways Committee.

CONTRACTS.

Manchester Cleansing Committee has recommended the acceptance of contracts with Karrier Motors, Ltd., Shelvoke & Drewry, and Lacre Lorries, Ltd., for the supply of motor vehicles.

Leeds Tramways Committee has accepted the tender of Brightside Foundry Co., Ltd., for the supply of hot-water apparatus for washing tramcars at Swinegate depot, and of W. McFarlane & Co. for the erection of two tramway shelters at Middleton.

Birmingham Tramways Committee has accepted the following tenders: Associated Equipment Co., Ltd., seventy-five double-deck omnibus chassis; Guy Motors, Ltd., twenty single-deck omnibuses; Vulcan Motor & Engineering Co., Ltd., thirty-five top-covered omnibus bodies and the mounting of the bodies upon chassis.

Christchurch (N.Z.) City Council, who invited tenders some time ago for the supply of trolley omnibuses, has placed a contract with Messrs. Cory-Wright and Salmon for "English Electric" chassis, at a cost of £1,459 each. The chassis will be of the six-wheel type, equipped with a 70 h.p. motor, and will carry a body seating 40 passengers. The total weight loaded will be 10 tons 8 cwt., the weight distribution being about 2½ tons on the front axle, 3½ on the middle one, and 4 on the rear one.

Liverpool Tramways Electric Power and Lighting Committee has recommended the acceptance of the following tenders: The English Electric Co., Ltd., supply of 12 1,000 kva. step-down transformers at £2,402 each; The Cargo Fleet Iron Co., 1,600 tons Sandberg silicon sorbitically-treated tramway rails at £11 5s. per ton; Société An Des Usines Acieries Allard, 60 tons of fish plates at £14 5s. per ton and 8 tons of fish bolts at £11 12s. per ton; Hadfields, Ltd., the Titan Trackwork Co., Ltd., Edgar Allen & Co., Ltd., tramway junctions; Premier Electric Welding (Mersey), Ltd., electric welding of 375 tramway rail joints and retreading of rail surfaces.

Digitized by Google

BUSINESS NOTES.

Commer Cars, Ltd., report that, owing to the reception accorded to the new Commer models at Olympia last year, the volume of business resulting has so far exceeded anticipation that to keep pace with the demand a 24-hour day has been found necessary in the works.

Park Royal Coach Works, Ltd., which has recently been registered, has been formed to take over the coach-building business of Hall, Lewis & Co., Ltd. (in voluntary liquidation). It will carry on the business of building the same high quality passenger bodies, and there will be no change in the management. Mr. A. T. Froggatt and Mr. B. Homfray Davies have joined the board. The other directors are Messrs. H. Yager, R. Dunsmore, W. S. Grossmith, and S. Yager.

Sheffield Tramways Committee has recommended acceptance of the tender of Leyland Motors, Ltd., for fifteen double-deck omnibuses, subject to the company purchasing from the department twelve double-deck omnibuses not now required. The Committee has also accepted the tender of John Shaw & Sons (Salford), Ltd., for the supply of one hydraulic wheel press of 250 tons pressure, complete with electric motor, for £320.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

Name.	Week ended	Latest Return. 1929	1930	+ or —	Aggregate. Wks	1929-30	+ or —
		£	£	£		£	£
Aberdare U.D.C.	Apr. 29	545	562	+ 17	4	2,497	+ 87
,, Motor Buses	,, 29	246	316	+ 70	4	1,236	+ 111
,, Total	,, 29	791	878	+ 87	4	3,733	+ 198
Aberdeen Corp.	,, 30	4,125	4,766	+ 641	48½	234,258	+ 18,548
Ashton-u-Lyne Corp.	,, 26	892	895	+ 3	4	3,442	— 75
,, Motor Buses	,, 26	494	528	+ 34	4	2,061	+ 110
,, Trolley Buses	,, 26	281	301	+ 20	4	1,138	+ 12
,, Total	,, 26	1,667	1,724	+ 57	4	6,641	+ 47
Ayr Corporation	May 3	458	499	+ 41	50	28,578	+ 1,344
Barrow Corporation	Apr. 26	552	616	+ 64	4	2,270	— 11
,, Motor Buses	,, 26	277	405	+ 128	4	1,492	+ 391
,, Total	,, 26	829	1,021	+ 192	4	3,762	+ 380
Belfast City	May 2	10,889	11,336	+ 447	4½	52,869	+ 3,838
,, Motor Buses	,, 2	1,145	1,351	+ 206	4½	6,268	+ 1,505
,, Total	,, 2	12,034	12,687	+ 653	4½	59,137	+ 5,343
Birkenhead Corp.	,, 4	1,670	1,671	+ 1	5	7,677	— 537
,, Motor Buses	,, 4	3,006	3,388	+ 382	5	16,426	+ 1,320
,, Total	,, 4	4,676	5,059	+ 383	5	24,103	+ 783
Birmingham Corp.	Apr. 29	27,237	26,076	— 1,161	4	109,407	+ 3,107
,, Motor Buses	,, 29	12,291	14,681	+ 2,390	4	62,262	+ 14,710
,, Trolley Buses	,, 29	556	562	+ 6	4	2,325	+ 189
,, Total	,, 29	40,084	41,319	+ 1,235	4	173,994	+ 18,006
Blackburn Corp.	,, 30	1,909	1,754	— 155	4½	8,116	— 143
,, Motor Buses	,, 30	Nil	309	+ 309	4½	1,462	+ 1,462
,, Total	,, 30	1,909	2,063	+ 154	4½	9,578	+ 1,319
Bradford Corporation	May 3	14,422	13,790	— 632	5	67,494	— 4,427
Brighton Corporation	,, 4	2,120	2,456	+ 336	4½	11,967	+ 903
Burnley Corporation	,, 3	3,180	2,816	— 364	...	...	...
,, Motor Buses	,, 3	620	652	+ 32	...	...	...
,, Total	,, 3	3,800	3,468	— 332	...	...	...
Burton-on-Trent Corp.	,, 4	803	842	+ 39	5	4,263	+ 2,208
Bury Corporation	,, 4	2,243	1,904	— 339	4½	9,147	— 1,568
,, Motor Buses	,, 4	373	1,064	+ 691	4½	5,181	+ 3,394
,, Total	,, 4	2,616	2,968	+ 352	4½	14,328	+ 1,826
Cardiff Corporation	,, 3	7,431	7,572	+ 141	4½	37,736	+ 2,732
Chatham and District	,, 1	1,048	1,170	+ 122	17	18,429	+ 1,071
Chester Corporation	,, 5	455	Nil	— 455	5	Nil	— 2,064
,, Motor Buses	,, 5	Nil	589	+ 589	5	3,032	+ 3,032
,, Total	,, 5	455	589	+ 134	5	3,032	+ 968
Chesterfield Corp.	,, 5	1,903	1,969	+ 66	5	9,685	+ 720
Colchester Corp.	,, 7	506	565	+ 59	6	3,156	+ 415
Colne Corporation	,, 7	693	682	— 11	5	3,789	+ 117
Coventry Corporation	,, 4	2,108	1,976	— 132	5	10,509	— 181
,, Motor Buses	,, 4	1,505	1,736	+ 231	5	9,214	+ 1,596
,, Total	,, 4	3,613	3,712	+ 99	5	19,723	+ 1,415
Darlington Corp.	,, 3	954	999	+ 45	4½	5,162	+ 696
Derby Corporation	,, 3	2,357	2,303	— 54	5	11,885	+ 100
,, Motor Buses	,, 3	604	832	+ 228	5	4,253	+ 1,289
,, Total	,, 3	2,961	3,135	+ 174	5	16,138	+ 1,389
Dover Corporation	,, 3	339	366	+ 27	5	1,838	+ 121
Dundee Corporation	Apr. 29	3,238	3,440	+ 202	49½	17,058	+ 6,076
East Ham Corp.	May 3	2,321	2,345	+ 24	4½	10,997	+ 449
Edinburgh Corp.	Apr. 26	13,220	14,141	+ 921	49½	706,450	+ 28,108
,, Motor Buses	,, 26	3,095	3,440	+ 345	49½	172,088	+ 19,583
,, Total	,, 26	16,315	17,581	+ 1,266	49½	878,518	+ 47,671
Exeter Corporation	May 7	832	804	— 28	6	4,364	— 267
Glasgow Corporation	,, 3	43,855	45,385	+ 1,530	48	2,130,086	+ 33,403
,, Motor Buses	,, 3	4,967	8,281	+ 3,314	48	315,513	+ 150,788
,, Total	,, 3	48,822	53,666	+ 4,844	48	2,445,599	+ 184,189
Gloucester Corp.	Apr. 30	479	665	+ 186	4½	3,013	+ 805
Grimsby Corporation	May 3	1,246	1,461	+ 215	5	7,285	+ 1,170
Halifax Corporation	Apr. 29	4,300	6,107	+ 543	4½	21,540	+ 2,717
Huddersfield Corp.	May 3	6,141	6,021	— 120	5	32,056	— 132
Hull Corporation	,, 3	5,797	5,774	— 23	5	28,337	+ 270
,, Motor Buses	,, 3	1,312	1,372	+ 60	5	6,812	+ 679
,, Total	,, 3	7,109	7,146	+ 37	5	35,149	+ 949
Ilford Corporation	,, 3	1,496	1,581	+ 85	4½	7,213	+ 300
Ipswich Corp. Trol.Bus	,, 3	1,193	1,334	+ 141	4½	6,230	+ 534
Isle of Thanet	Apr. 30	456	554	+ 98	17½	6,923	— 45
Kilmarnock Corp.	May 3	446	470	+ 24	50½	24,163	+ 1,833
Lancashire Un.	Apr. 27	2,274	2,149	— 125	10½	36,682	— 1,247
,, Motor Buses	,, 27	3,910	5,341	+ 1,431	10½	78,376	+ 12,778
Leeds Corporation	May 3	19,234	19,363	+ 129	4½	94,183	+ 4,704
Leicester Corp.	,, 3	8,147	8,234	+ 87	5	39,837	+ 1,631
Lincoln Corp.	Apr. 27	923	1,068	+ 145	4	3,674	+ 80
Liverpool Corp.	May 3	29,258	30,202	+ 944	4½	142,650	+ 4,462
London County Coun.	,, 7	82,413	83,655	+ 1,242	5½	437,391	+ 1,239
Luton Corporation	Apr. 30	391	458	+ 67	4½	1,948	+ 219
Maidstone Corp.	May 1	212	Nil	— 212	4½	Nil	— 1,344
,, Motor Buses	,, 1	250	270	+ 20	4½	1,296	— 4
,, Trolley Buses	,, 1	277	612	+ 335	4½	3,178	— 1,696
,, Total	,, 1	739	882	+ 143	4½	4,474	+ 348
Manchester Corp.	,, 3	35,314	32,547	— 2,767	5	153,038	— 12,808
,, Motor Buses	,, 3	4,822	8,244	+ 3,422	5	39,414	+ 16,961
,, Total	,, 3	40,136	40,791	+ 655	5	192,452	+ 4,153
Middlesbrough Corp.	Apr. 29	1,150	1,066	+ 84	4½	4,532	— 243
,, Motor Buses	,, 29	463	550	+ 87	4½	2,371	+ 330
,, Total	,, 29	1,613	1,616	+ 3	4½	6,903	— 87

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS—*Continued.*

Name.	Week ended	Latest Return. 1929	1930	+ or —	Aggregate. Wks	1929-30.	+ or —
		£	£	£		£	£
Newcastle-on-Ty.Corp.	May 3	9,173	8,598	— 575	4½	42,006	— 1,191
,, Motor Buses	,, 3	1,936	2,386	+ 450	4½	11,761	+ 2,694
,, Total	,, 3	11,109	10,984	— 125	4½	53,767	+ 1,503
Newport Corporation	Apr. 19	696	835	+ 139	3	2,304	+ 373
,, Motor Buses	,, 19	1,609	1,628	+ 19	3	4,719	+ 295
,, Total	,, 19	2,305	2,463	+ 158	3	7,023	+ 668
Northampton Corp.	May 2	1,052	1,145	+ 93	4½	5,147	— 493
,, Motor Buses	,, 2	614	686	+ 72	4½	3,117	+ 724
,, Total	,, 2	1,666	1,831	+ 165	4½	8,264	+ 231
Nottingham Corp.	,, 1	6,261	5,597	— 664	4½	25,413	— 3,687
,, Motor Buses	,, 1	2,103	3,170	+ 977	4½	14,173	+ 4,240
,, Trolley Buses	,, 1	602	1,165	+ 563	4½	5,283	+ 2,634
,, Total	,, 1	9,056	9,932	+ 876	4½	44,869	+ 3,187
Oldham Corporation	,, 3	3,724	3,443	— 281	6	20,170	— 1,423
,, Motor Buses	,, 3	1,977	1,997	+ 20	6	11,854	— 228
,, Total	,, 3	5,701	5,440	— 261	6	32,024	— 1,651
Plymouth Corp	,, 3	3,663	3,751	+ 88	4½	17,780	+ 263
,, Motor Buses	,, 3	1,858	2,343	+ 485	4½	11,359	+ 2,513
,, Total	,, 3	5,521	6,094	+ 573	4½	29,139	+ 2,776
Portsmouth Corp.	,, 3	5,506	6,779	+ 1,273	5	32,453	+ 4,894
Preston Corporation	Apr. 30	1,681	1,603	— 78	4½	7,211	— 216
,, Motor Buses	,, 30	456	474	+ 18	4½	2,198	+ 160
,, Total	,, 30	2,137	2,077	— 60	4½	9,409	— 56
Rawtenstall Corp.	May 4	895	664	— 231	4½	3,692	— 533
,, Motor Buses	,, 4	522	717	+ 195	4½	3,121	+ 572
,, Total	,, 4	1,417	1,381	— 36	4½	6,813	+ 39
Reading Corporation	,, 1	1,448	1,423	— 25	5	6,327	— 52
,, Motor Buses	,, 1	838	960	+ 122	5	4,319	+ 591
,, Total	,, 1	2,286	2,383	+ 97	5	10,646	+ 539
Rochdale Corp.	,, 3	3,058	2,681	— 377	...	13,266	— 1,330
,, Motor Buses	,, 3	1,450	1,530	+ 80	...	7,971	+ 976
,, Total	,, 3	4,508	4,211	— 297	...	21,237	— 354
Rotherham Corp.	,, 5	2,640	2,646	+ 6	5	11,423	+ 1,496
Salford Corporation	,, 2	11,012	11,445	+ 433	4½	55,305	+ 1,616
Sheffield Corp.	,, 3	20,329	20,630	+ 301	4½	104,755	+ 2,786
Southampton Corp.	Apr. 30	3,184	3,373	+ 189	5	14,527	+ 778
,, Motor Buses	,, 30	641	877	+ 236	5	3,804	+ 1,030
,, Total	,, 30	3,825	4,250	+ 425	5	18,331	+ 1,808
Southend-on-Sea Corp.	May 7	1,940	2,126	+ 186	5½	11,596	+ 504
Southport Corp.	,, 3	1,190	1,227	+ 37	4½	6,152	+ 381
,, Motor Buses	,, 3	314	372	+ 58	4½	1,885	+ 356
,, Total	,, 3	1,504	1,599	+ 95	4½	8,037	+ 737
St. Helens Corp.	Apr. 29	1,801	1,956	+ 155	4½	8,633	+ 1,261
Sunderland Corp.	May 6	2,247	2,285	+ 38	5	12,297	+ 673
,, Motor Buses	,, 6	Nil	419	+ 419	5	2,260	+ 2,260
,, Total	,, 6	2,247	2,704	+ 457	5	14,557	+ 2,933
Swindon Corp.	Apr. 30	590	974	+ 384	4½	4,213	+ 1,486
Wallasey Corp.	May 3	1,237	1,200	— 37	4½	5,755	— 134
,, Motor Buses	,, 3	1,836	2,161	+ 325	4½	10,109	+ 1,596
,, Total	,, 3	3,073	3,361	+ 288	4½	15,864	+ 1,462
Walsall Corporation	Apr. 27	3,264	4,051	+ 787	4	14,462	+ 895
Walthamstow Corp.	May 3	2,368	2,516	+ 148	4½	11,598	— 103
Warrington Corp.	,, 1	890	872	— 18	5	4,506	+ 94
,, Motor Buses	,, 1	445	478	+ 33	5	2,503	+ 325
,, Total	,, 1	1,335	1,350	+ 15	5	7,009	+ 419
West Ham Corp	,, 1	5,934	6,226	+ 292	4½	27,488	+ 417
Wolverhampton Corp. Motor Buses	Apr. 27	2,689	2,905	+ 216	4	9,847	— 1,375
,, Trolley Buses	,, 27	3,109	3,939	+ 830	4	14,198	+ 1,527
,, Total	,, 27	5,798	6,844	+ 1,046	4	24,045	+ 152
York Corporation	,, 30	921	967	+ 46	5	4,367	+ 304
,, Motor Buses	,, 30	347	473	+ 126	5	2,154	+ 587
,, Trolley Buses	,, 30	50	Nil	— 50	5	Nil	— 145
,, Total	,, 30	1,318	1,440	+ 122	5	6,521	+ 746

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

Name.	Week or M'th.	Latest Return. 1928-29.	1929-30.	Aggregate. Wks. or *Ms.*	1929-30.	In. or Dec.
Anglo-Argentine	May 6	£92,214	£89,590	18 w	£1,516,867	— £76,347
Brazilian Traction $	Mar.	3,928,550	4,047,036	3 m	11,707,823	+ 130,731
British Columbia $	Mar.	1,243,592	1,258,375	9 m	11,110,713	+ 567,360
Buenos Aires Lacroze	May 4	13,055	12,222	44 w	517,439	— 41,175
Burma E. Sup. Co. Rs.	Mar.	68,993	72,758	8 m	511,726	— 23,007
Calcutta ... Rs.	May 3	125,873	108,822	17½ w	2,106,407	— 192,491
Cape Town ...	Mar.	30,121	30,087	...	...	...
Carthagena & Herrerias	Apr.	1,083	905	4 m	4,545	+ 925
Durban ...	Mar.	24,442	23,662	8 m	190,536	+ 1,460
East India ...	Apr.	3,708	3,601	9 m	34,126	+ 571
Kalgoorlie ...	Jan.	1,531	1,454	1 m	1,454	— 77
Madras (2 weeks) Rs.	Apr. 30	40,038	43,344	16 w	371,903	+ 26,653
Para ...	Mar.	14,971	14,976	4 m	57,647	+ 281
Port Elizabeth	Mar.	7,857	8,127	...	...	...
Rangoon ... Rs.	Apr.	120,855	148,215	4 m	608,025	+ 134,789
Shanghai ... $	Apr.	336,624	308,840	4 m	1,372,562	+ 82,225
Singapore ... ...$	Mar.	133,000	143,000	6 m	798,000	+ 102,000
Winnipeg ... ...$	Mar.	572,492	571,157	3 m	1,767,705	+ 16,352

RAILWAY RECEIPTS.

18th Week ended May 4th	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week.	Inc. or Dec. to Date.
G.W.R.	227,000	+ 15,000	355,000	— 8,000	582,000	+ 7,000	— 219,000
L.M.S.R.	487,000	+ 3,000	818,000	— 61,000	1,305,000	— 58,000	— 732,000
L.N.E.R.	330,000	— 1,000	686,000	— 17,000	1,026,000	— 18,000	— 252,000
S.R.	309,000	+ 18,000	117,000	+ 3,000	426,000	+ 21,000	— 21,000
Totals	1,353,000	+ 35,000	1,986,000	— 83,000	3,339,000	— 48,000	—1,224,000

ELECTRIC RAILWAYS.

Name.	Week Ended.	Latest Return. 1929.	1930.	+ or —	Aggregate. 1930.	+ or —
London Underground Common Fund Cos.	May 3	290,400	320,300	+ 29,900	5,260,400	+ 408,700
Lond. & Sub. Group	,, 3	41,600	46,100	+ 4,500	761,700	+ 74,000
Metropolitan Railway	,, 3	36,200	36,600	+ 400	659,100	+ 21,200
Liverpool Overhead	,, 4	1,580	1,523	— 57	26,882	— 1,225
Mersey Railway ...	,, 3	4,618	4,750	+ 132	85,029	+ 2,509

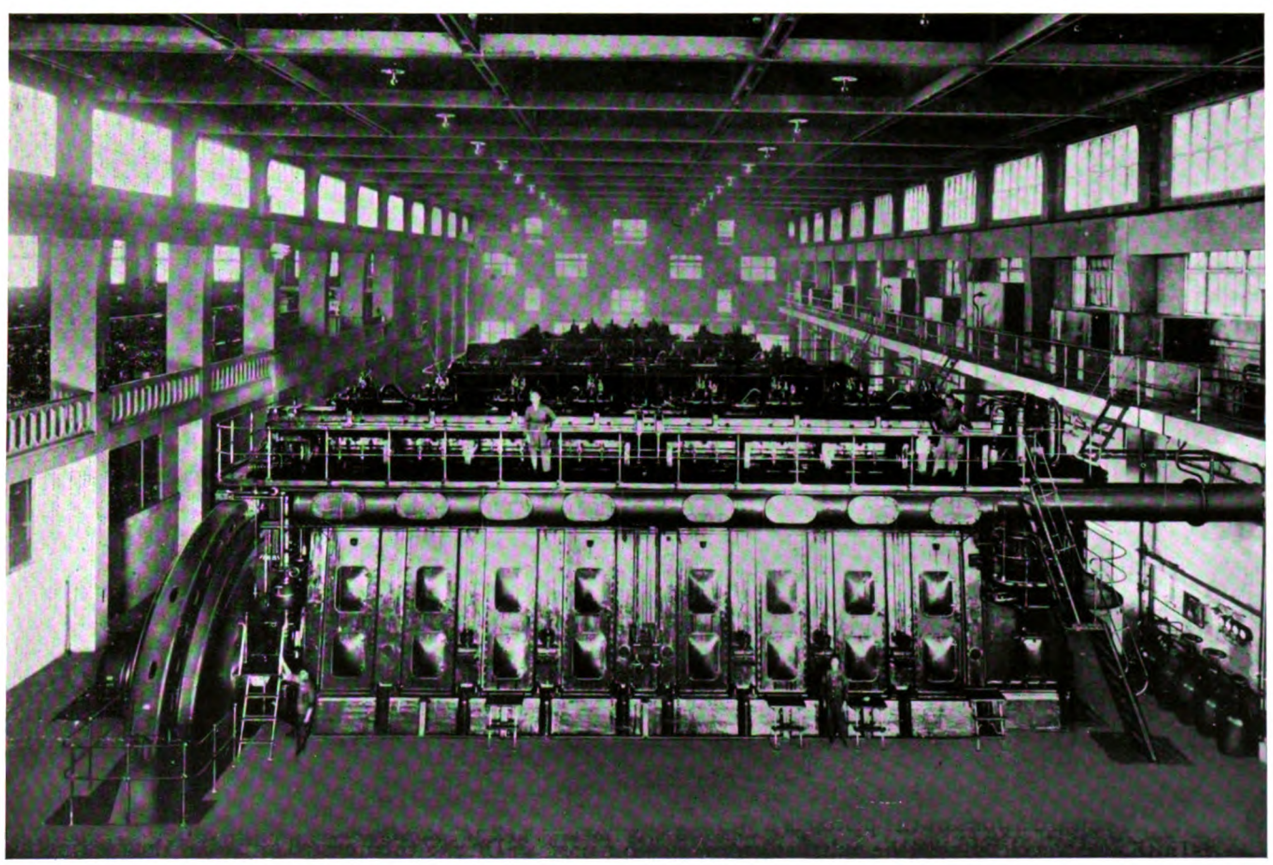
Digitized by Google

THE Tramway & Railway World
WITH OMNIBUS & COACH SECTION
Founded 1892 LONDON, MAY 15, 1930 VOL. LXVII

A 30,000 B.H.P. DIESEL ENGINE GENERATING STATION.

THE POWER PLANT OF THE FRENCH ELECTRIC TRAMWAYS AND LIGHTING COMPANY OF SHANGHAI.

With the installation, shortly to take place, of a further 5,250 B.H.P. Diesel engine generating set, the equipment of the new power house of the Compagnie Francaise de Tramways et d'Eclairage Electriques de Shanghai will be complete. Situated in the French Settlement at Shanghai, this generating station houses the largest Diesel engine electric power plant in the world and supplies power for the extensive tramway system operated by the company in addition to a heavy lighting and industrial load.



Power Station of the French Tramways and Electric Lighting Company, Shanghai, equipped with Sulzer-Diesel Engines

The first set was installed in 1924, and by the end of 1925 the station was equipped with four two-cycle Diesel engines—two of 1,500 and two of 3,600 B.H.P., a total of 10,200 B.H.P. Two further sets of 5,250 B.H.P. each were put into service in 1927 and 1929. A seventh and similar set is at present in course of construction and will be installed in the course of the present year.

The prime movers, as well as the auxiliary plant in this interesting power station, have been constructed in the Winterthur (Switzerland) works of Sulzer Bros., to whom, more than to anyone else, the present excellence and high efficiency of the Diesel engine is due.

When it is remembered that the late Dr. Rudolf Diesel patented his invention as late as 1893 and that the first experimental engine based upon his theoretical principles was not constructed until 1897, the progress made in thirty years appears indeed remarkable. In its original form the Diesel engine was designed as a four-cycle engine, but development, for marine purposes, on the two-stroke principle quickly followed. The application of the two-stroke cycle for use in stationary plant and the subsequent development along these lines is due to the initiative of the brothers Sulzer. The first two-cycle engine intended for other than research work was of 750 B.H.P. It was constructed in 1907 and is still at work to-day.

Digitized by Google

The first engine proved that the two-cycle system possessed many advantages over the four-cycle for large engines and also with regard to the possibility of using fuels of a high flash point. Further experience induced Sulzer Bros. to adopt the two-cycle system for engines of low power, and for this purpose a new type of airless injection two-cycle engine with pre-combustion chamber was introduced. The advantages accruing from the absence of the injection air compressor in these engines led Sulzer Bros. to adopt the airless injection principle for four-cycle engines also.

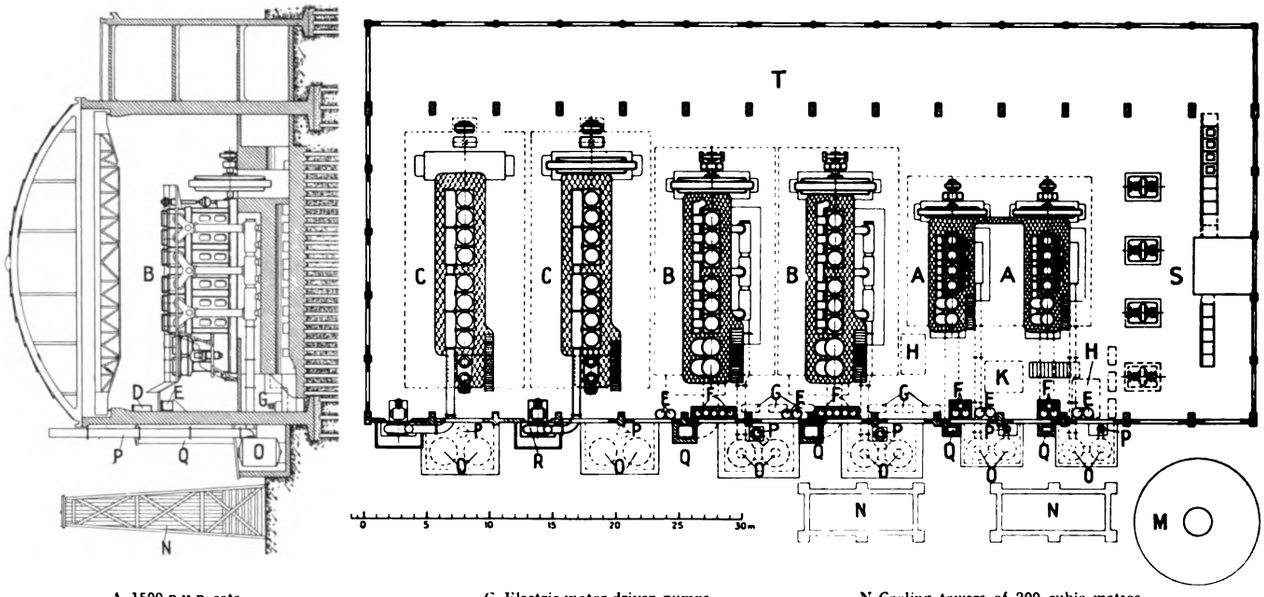
For large two-cycle engines Sulzer Bros. have brought out a patented system of super-charging which allows the output of a given cylinder volume to be increased considerably and is particularly advantageous for engines which are called upon to deal with peak loads. This and the many other important improvements which have been introduced during the last few years have rendered possible the construction of units of several thousand horse-power which could only have been effected with extreme difficulty under the four-cycle principle.

and combustion chamber, which contains only the comparatively small starting and fuel valves, which are not affected by the hot combustion gases.

In addition to the many advantages derived from the two-cycle type of engine, such as smaller dimensions, shorter crankshaft, reduced weight of moving parts and simplification of valve gear, its simple construction ensures greater reliability and facilitates the use of lower grade fuels, which cannot be burnt in the four-cycle engine unless pilot ignition is provided.

The characteristic feature of the Sulzer two-cycle Diesel engines which have been installed at Shanghai is the patented system employed for scavenging and refilling the cylinders with fresh air. This system is the outcome of many years' experience in building large units and, in particular, of a long series of tests made with a two-cycle engine of 2,000 B.H.P., built especially for experimental purposes.

The air ports are arranged in two rows one above the other, the upper ports being placed higher in the cylinder than the exhaust ports, and controlled by an exterior valve. When the upper portion of the air



A 1500 B.H.P. sets
B 3600 B.H.P. sets
C 5250 B.H.P. sets
D Fuel tanks
E Fuel service tank
F Compressed air bottles
G Electric motor-driven pumps
H Tank for water from piston cooling
K Hot-water tank
M Water tower of 400 cubic metres capacity
N Cooling towers of 200 cubic metres capacity each
O Silencers
P Exhaust pipes
Q Scavenging air inlet
S Rotary transformer sub-station

Plan and Cross Section of the Power Station at Shanghai, equipped with Diesel Engines.

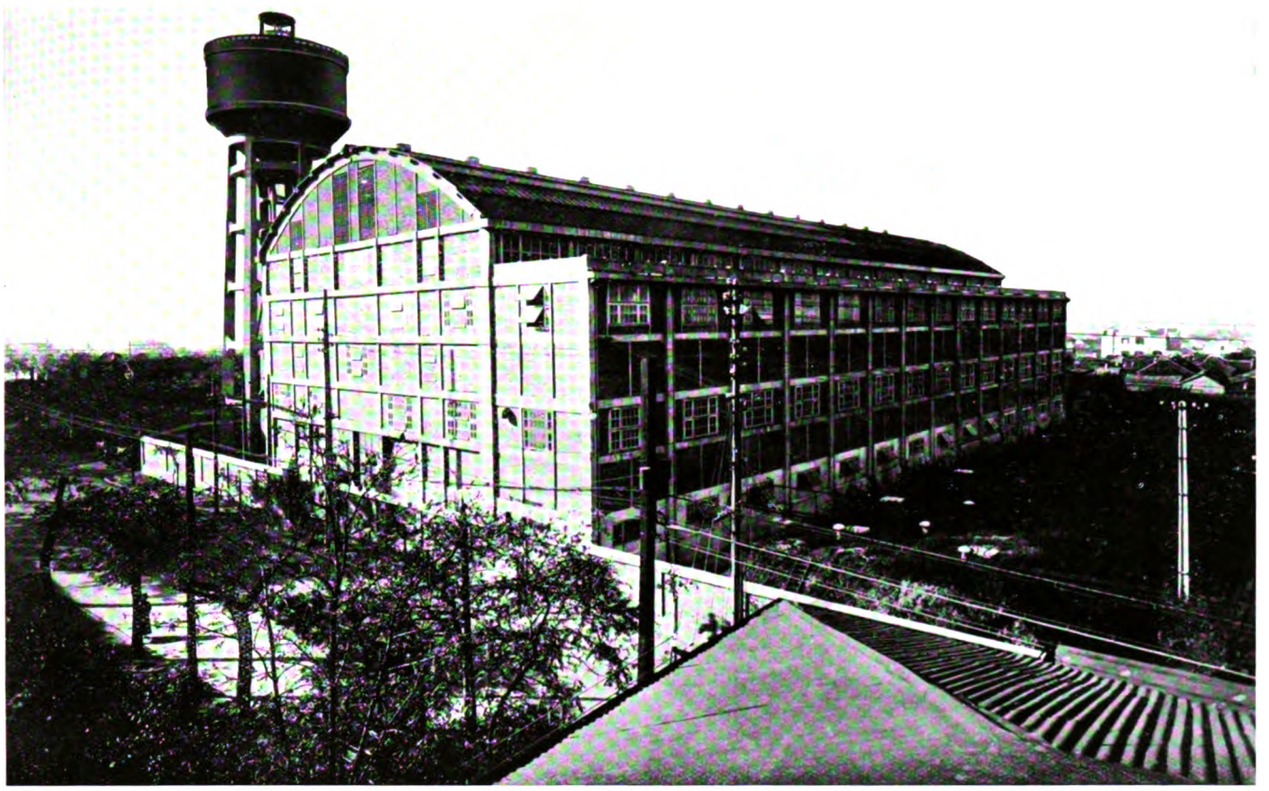
As is well known, the original Diesel cycle requires for its accomplishment two complete revolutions (four strokes) with the four-cycle engine, but only one revolution (two strokes) with the two-cycle engine, in which every downward stroke of the piston is a working stroke. In the four-cycle engine the exhaust gases are expelled from the cylinder during the upward stroke of the piston, and fresh air is drawn in during the downward stroke. In the two-cycle engine, however, this scavenging and refilling is done quickly at the termination of the downward stroke by a low pressure air-pump, which blows fresh air at a pressure below 5 lb. per sq. in. into the cylinder. In the Sulzer engines this scavenging pump, which is of extremely simple design, is placed on an extension of the engine bed-plate.

The exhaust and inlet valves common to engines designed to work on the four-cycle system are, in the two-cycle engine, replaced by ports located near the bottom end of the cylinder and therefore not subject to high combustion temperatures. This permits of great simplification in the design of the cylinder cover

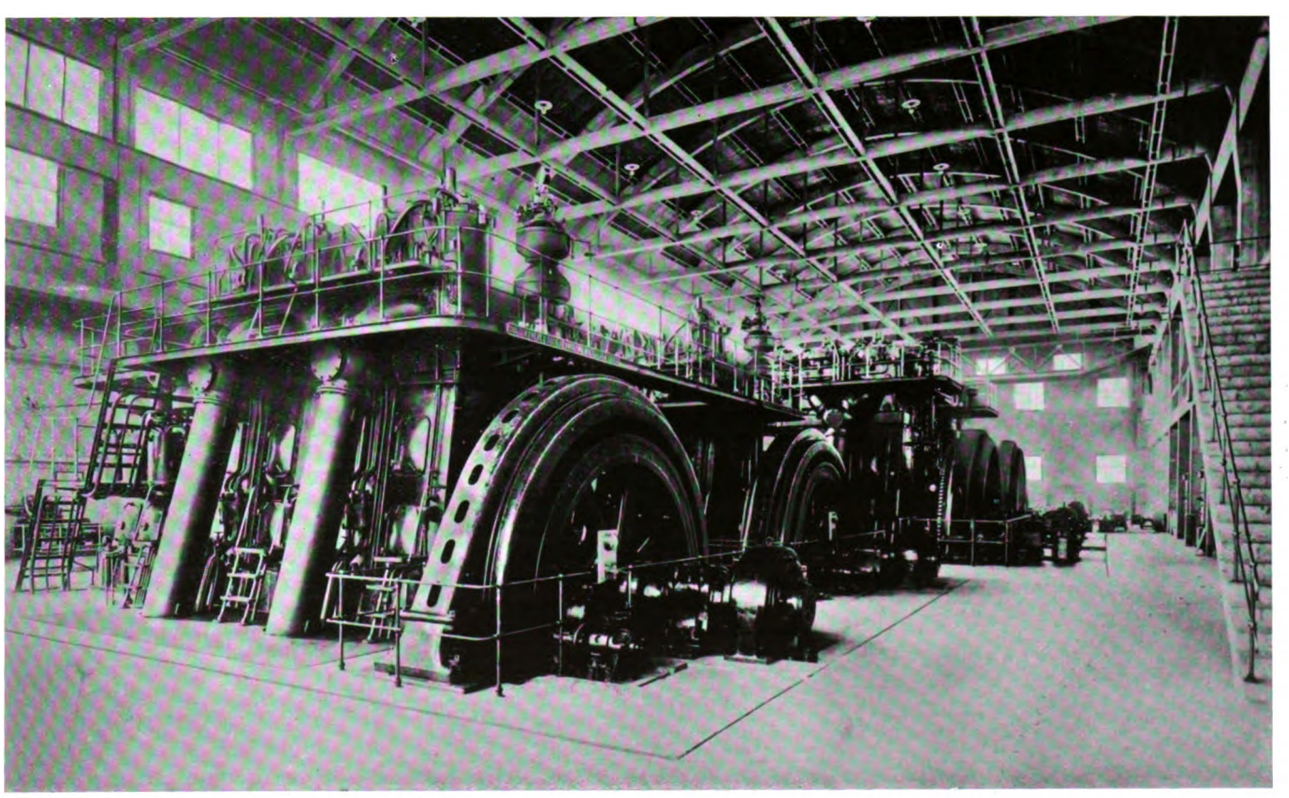
ports is uncovered on the downward stroke of the piston, no air admission takes place and the valve remains closed. The exhaust gases escape as soon as the piston uncovers the exhaust ports and scavenging air is then admitted through the lower portion of the air ports. During the upward stroke of the piston, the control valve of the upper air ports remains open and fresh air enters the cylinder under slight pressure, after the piston has closed the exhaust ports.

This special arrangement of the scavenging ports ensures a high scavenging efficiency and, by the continuation of the air charging after the exhaust ports are closed, the output of the engine is increased by 15 to 30 per cent. The position of the scavenging control valve is such that it is subjected to low temperatures only and by its use escape of exhaust gases into the scavenging air receiver is excluded. Moreover, due to the large area of the ports, there is no wire drawing of the scavenging air and, consequently, less power is required by the scavenging air-pump than is the case with valve scavenging.

Digitized by Google



Central Power Station of the Compagnie Francaise de Tramways et d'Eclairage Electriques, Shanghai.



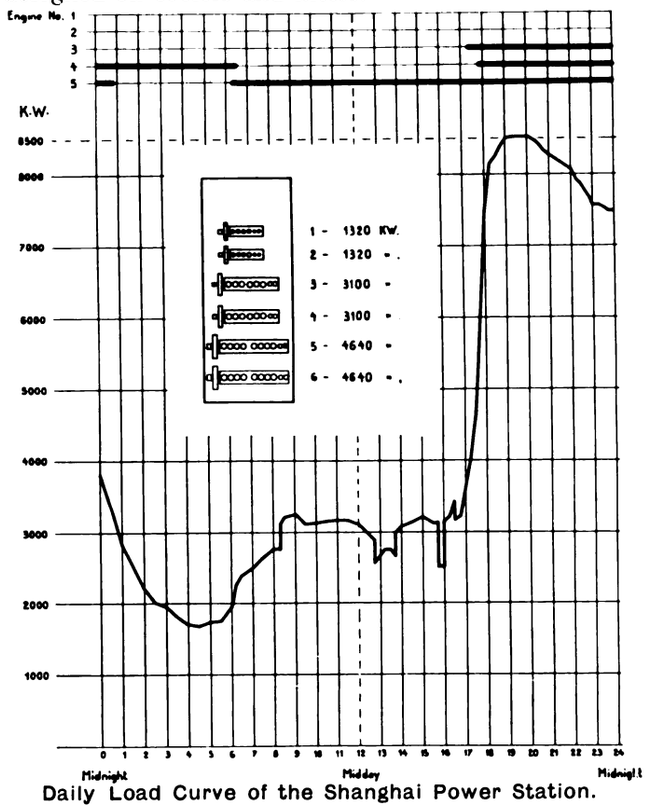
The First Four Sulzer-Diesel two-stroke Engines (two 1,500 B.H.P., and two 3,600 B.H.P).

Digitized by Google

The engines, which are robust in construction, are of the slow speed type. They are of vertical pattern, single acting, with cylinders open at the lower end. The frames, which are very strong, are designed for direct transmission of forces from cylinders to bed-plate. The solid bed-plates are common to working cylinders and air pumps. In order to relieve the cylinders of lateral pressure, cross-heads are provided and the light reciprocating masses are almost completely balanced.

Cooling of the pistons is effected by a patented system which ensures a high cooling efficiency. Cylinder covers and exhaust piping are also efficiently cooled. The covers of the cylinder—designed with extreme simplicity—are provided with large openings for cleaning the interior water spaces.

The air compressors are of the three-stage type, the low-pressure cylinders being arranged in tandem with the scavenging pump—a feature which is covered by patents. Lubrication is automatic and the oil, which is forced to all moving parts, passes through specially-designed oil coolers and filters.



Daily Load Curve of the Shanghai Power Station.

Sulzer Brothers patented regulating device, which varies the lift and cut-off of the fuel valve simultaneously with the pressure of the injection air, is incorporated. This feature is of especial value when running alternators in parallel.

The two sets first installed were four-cylinder engines of 1,500 B.H.P. each. These were followed by two six-cylinder engines of 3,600 B.H.P. each. Next an eight-cylinder engine of 5,250 B.H.P., at 125 R.P.M., was put into service, followed by another of the same design and power twelve months later. That now under construction is to be similar to the two last installed.

Some interesting figures are given below of the results obtained on trial of one of the six-cylinder 3,600 B.H.P. engines. The engine was run continuously for ten hours, *i.e.*, 7½ hours on full load, 2 hours with ten per cent. overload, and half-an-hour with twenty per cent. overload.

With Diesel fuel oil of a calorific value of 18,000 B.Th.U. per lb., fuel consumption was found to be :—

At full load (3,600 B.H.P.) 0.415 lb. per B.H.P.-hour ;
At three-quarter load (2,700 B.H.P.) 0.422 lb. per B.H.P.- hour ;
At half-load (1,800 B.H.P.) 0.458 lb. per B.H.P.-hour ;
When working with 10 per cent. and 20 per cent overload, corresponding to 3,950 and 4,320 B.H.P., the fuel consumption was 0.426 and 0.451 lb. per B.H.P.-hour respectively ;
The consumption of lubricating oil for the cylinders amounted to 0.8 grams per B.H.P.-hour, while the consumption in the forced lubrication system for the driving gear, bearings, etc., was so small that it could not be determined in the short period during which the engine was under test.

The absence of vibration and the smooth running, due to the elimination of heavy valve gear, are very noticeable.

A typical day's load curve at the Shanghai station is given in which the time each set was in service is shown at the top of the graph. It will be noticed that the load more than doubled itself between 5 p.m. and 6 p.m., and that in dealing with it the Diesel engines proved their immediate readiness for service.

A notable feature in connection with the installation is the great economy in space which is achieved by the absence of steam-raising plant. From the accompanying plan and cross-section, on page 236, it will be seen that generating units with a total capacity of about 25,000 B.H.P. have been accommodated in a power house of approximately 235 ft. by 105 ft. Moreover, the absence of coal storage bunkers and unsightly smoke-stacks is worthy of notice.

TRAMWAY CIRCLE FOR LIEGE.

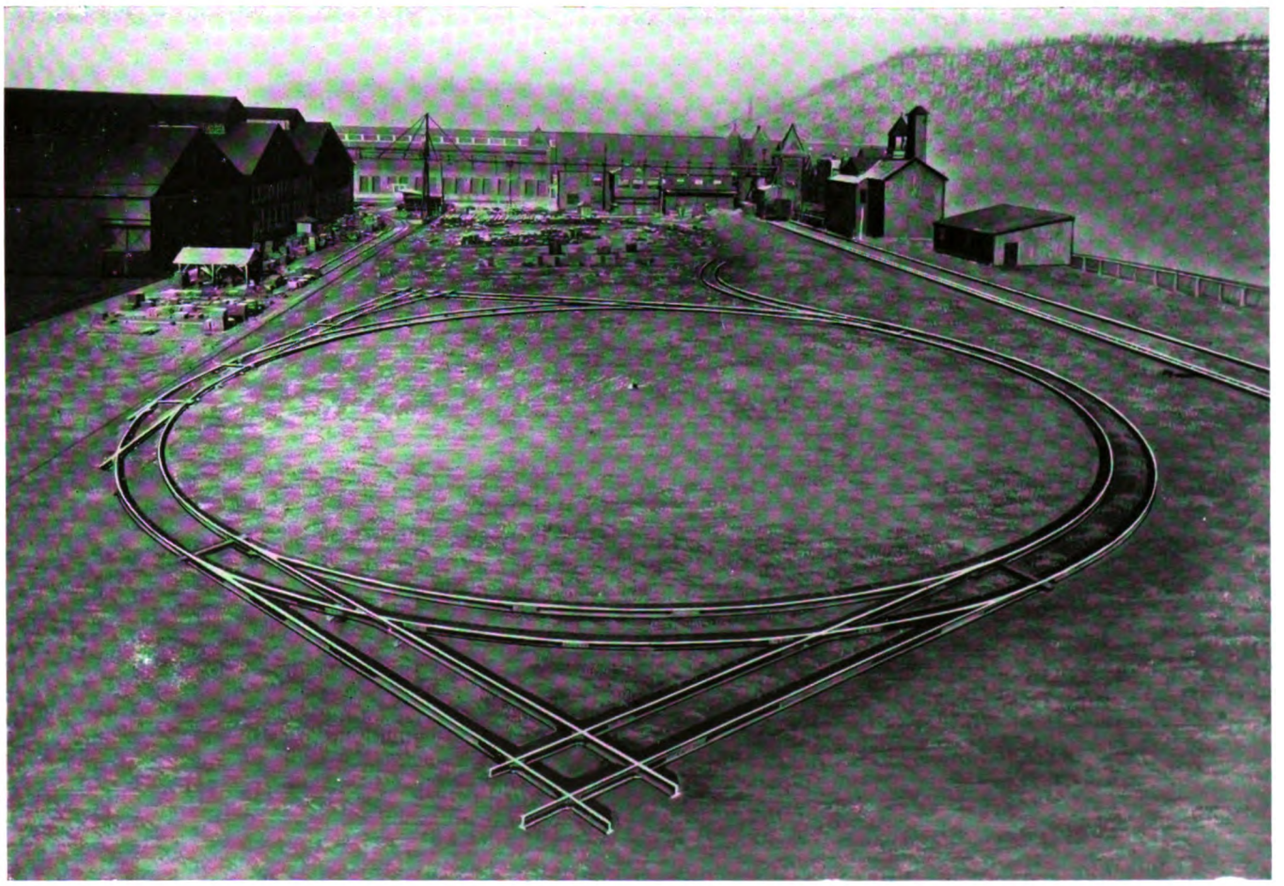
The tramway layout shown in two illustrations on the opposite page is a circle of unique design and of unusual size. It was manufactured for the City of Liége, Belgium, by the Lorain Steel Co., and was supplied through its export distributor, the United States Steel Products Co. In the second illustration the circle is shown as completely assembled in the layout yards at the manufacturer's works before shipment. In order to assure correct and speedy assembly of the material on its arrival at Liége the work was laid out complete, as shown in the photograph

The circle has a radius of 22.5 m. The points and crossings are of chrome nickel steel. The connected tongue switches are of the well-known "Tadpole" or original big-head type, which, it is claimed, has never been surpassed and is universally recognised as a thoroughly efficient type of point. The rolled open-hearth connecting rails, which were also supplied by the Lorain Steel Co., were specially heat-treated to provide resistance against wear and corrugation. This heat treatment increases the Brinnell hardness, and is expected to prolong the life of the rails by at least fifty per cent.

In the other illustration the layout is shown as installed in an important position in the centre of Liége. The actual location is at Gretry Square, which is bordered by the Theatre Royale, Place de la Republique Francaise and Rue Clemenceau, from which tracks lead into the Place Marshal Foch, Rue Hamal, and Boulevard de la Sauveniere. Cars both of the Tramways Unifies de Liége et Extensions and the Railways Economiques de Liége-Seraing will run over this important junction. To all concerned in tramway operation the junction will be an object of interest during the International Industrial Exhibition, which was opened in Liége early in May by the King and Queen of the Belgians.

Digitized by Google

Tramway Circle in Position at Gretry Square, Liege.



Tramway Circle of 64 ft. radius assembled at the Works of the United States Steel Products Company previous to shipment to Liege, Belgium.

Digitized by Google

TROLLEY OMNIBUS SYSTEM OF HASTINGS AND BEXHILL.

A notable conversion by the Engineer of the Tramways Company which has been inspected by Visitors from all over the World.

Many operators of passenger transport systems, both in Great Britain and in other countries, are already acquainted with the facts relating to the conversion of the company-owned tramways of Hastings, St. Leonards-on-Sea and Bexhill-on-Sea to trolley omnibus traction. The knowledge has in many cases been gained at first hand by deputations, who have been greatly interested in the smoothness of the gradual change-over and in the rapidity with which Mr. W. Vincent Edwards, the engineer and general manager, has effected the whole conversion. Within a year and ten months of the passing of the Hastings Tramways Company (Trolley Vehicles) Act, 1927, the installation of the trolley omnibuses, all running on giant pneumatic tyres, was completed, and for at least half of that period engineers and others interested in public passenger transport have looked upon Hastings as a show place for this form of enterprise. Deputations have been received from numerous towns in England and Wales, from Germany, Rome, Brussels, New Zealand, India and the Argentine.

The methods adopted by Mr. Vincent Edwards have attracted attention and won general praise. It is not intended to review them in detail in this general account, as Mr. Vincent Edwards is to submit to the Annual Congress of the Tramways, Light Railways and Transport Association at Hastings on June 11 to 13 a paper dealing with some special features of his work.

A number of facts arising from the conversion may, however, be emphasised. One is that with the types of trolley omnibus chassis made by Guy Motors, Ltd., of Wolverhampton, there is nothing to fear from the severest gradient, either up or down. Several notable hills are operated over in Hastings and St. Leonards, the most marked having gradients of 1 in 8; and any apprehension of danger was quickly dissipated when the new services had been a short time in operation. The vehicles are fitted with both air and electric brakes of very efficient types.

Not only is the six-wheel double-decker a handsome vehicle with a low-loading platform, but it has a low centre of gravity. This makes a tilting angle of over 45 degrees entirely safe when the vehicle is fully equipped for service with overhead trolley arms, etc Another safety factor is to be found in the two-axle bogie which carries the four rear wheels. If one of these tyres should become deflated, the body on the side affected would only come vertically into line with an imaginary plumb-line suspended from the roof to a few inches above the ground. In other words, there is no danger from burst or deflated tyres, as the vehicle only inclines half the amount which the wheel drops. Another contributory cause of this is the method of springing the four rear wheels.

Junction of the Circular and Hollington Routes at Silverhill.

An important point bearing on hilly operation is that the fleet of fifty-eight Guy trolley omnibuses has the Rees-Stevens system of control. With this control there is regenerative braking, which is stated to be capable of enabling the omnibus to operate on any main road hill. There can also be fitted a safety device to retard backward running in the event of the trolley leaving the wire. This device takes the form of an

Digitized by Google

additional pair of contactors which short-circuit the armature and series coils of the motor immediately the line circuit is broken. This arrangement prevents running backwards at more than two or three miles an hour, even on the steepest hill.

The great majority of the trolley omnibuses in use at Hastings are of the single-deck type and have central entrances. Messrs. Ransomes, Sims & Jefferies, Ltd., of Ipswich, supplied fifty of these saloon bodies, which

Trolley Omnibuses Supersede the Front Tramways.

have been generally admired by many managers and deputations who have inspected them. The bodies of the double-deck trolley omnibuses were made by Messrs. Dodson, of Willesden. These omnibuses without top covers are, we believe, the only trolley omnibuses of the kind in service. Difficulties that were experienced in connection with this rather novel design have been successfully overcome; and as the open tops afford visitors who come to the town an excellent opportunity to see the country under pleasant circumstances they are very popular. The double-deck vehicles are not, however, run on the severest gradients, the single-deck closed vehicles being used on routes where these occur.

A glance at the configuration of the borough in relation to the new services will indicate that the safety provision of the Guy machine, single and double deck, is indeed an important factor in its success on the twenty-one and a-half miles of route in Hastings, St. Leonards and Bexhill. That total of mileage is, it is believed, the highest of any trolley omnibus system in Great Britain. The additional route mileage provided for in the company's Parliamentary Bill of this session comprises one mile in the borough of Hastings and half-a-mile in the borough of Bexhill.

A semi-circle roughly ten miles in circumference would enclose the trolley omnibus system of the two boroughs, the Hastings and St. Leonards services having more than three-quarters of the route mileage in the eastern interior of the semi-circle. Hastings borough occupies one narrow valley and three broad valleys, the narrow or eastern valley lying between the Castle Hill and the East Hill, both landmarks to English Channel navigators. William the Conqueror seized them after his landing at Pevensey, west of Bexhill, and marched his main force along the crest of the eastern side of the semi-circle to Ore and the Harrow, and thence further inland to Telham before descending to Senlac or Battle for the last fight that an invader has waged on British home soil. Along nearly two miles of that route electric tramways were operated from 1908 until replaced by the trolley omnibus service about two years ago. This route is part of the circular trip so popular with visitors and residents. From the Harrow aforementioned the circular route proceeds south, giving views over Bexhill, Pevensey Bay to Eastbourne and Beachy Head. The route is via Silverhill (past the principal depot) to London Road, and the sea front at St. Leonards, Grand Parade, Eversfield Place, and Hastings Pier to Robertson Street and the Albert Memorial Clock, for which in view of the intensity of modern traffic another site should now be found.

This end of Robertson Street may be termed the trolley and petrol omnibus centre. Here the trolley omnibus coming from the western side of the circular trip connects with two routes that give alternative means of making the journey on the eastern side of the circular trip. One is inland via Queen's Road, St. Helen's Road and Mount Pleasant Road to Ore, the other being eastward by way of Wellington Place and Castle Street to the sea front of the Old Town of Hastings. Here, at what was formerly the Fish-market, the omnibuses can be turned or run up the narrow High Street between the Castle Hill and the East Hill to Ore on the circular ride. This amount of detail concerning only one-half of the whole system can be readily grasped by a glance at the map, and it has been entered into for two reasons.

One reason is that during numerous visits we have been much impressed by the fact that trolley vehicles in the busy centre of Hastings do not contribute to congestion. Four services pass through the area bounded by the Memorial, Robertson Street and Cambridge Road, and these omnibuses move with as much freedom and speed as any motor conveyances. The trolley omnibuses are kept well in to the pavements, but are

Turning at The Hollington Terminus.

always ready, by passing slower units, to keep traffic unimpeded. Passengers are safely deposited on the kerb, and conductors keep a look-out for folk who may be running towards the omnibus before it moves

Digitized by Google

expeditiously and noiselessly away. Practically the only sound that meets the ear is the not unpleasing swish of the trolley wheel, which is not a disadvantage in an era when complaints are rife of the noiseless approach of pneumatic-tyred public vehicles.

The other reason is that the local authority and Parliament have permitted trolley omnibuses to be installed in the narrow streets of East Hastings where the tramcar was prohibited. The Act of 1927 enabled the eastern front line from the Memorial to the Fish-market turning point, and also the Old Town, to be linked with the remainder of the borough, thus giving an alternative circular route by means of the new connection between the Fishmarket and the top of High Street through the Old Town valley. Owing to its narrowness High Street is at present a one-way street for trolley omnibuses, and the company's new Bill contains a clause that would allow two-way operation, as is the case with the vehicles of other local

A Six-Wheeler rounding the loop at Alexandra Park.

transport providers. Thanks to an agreement negotiated by the Mayor (Councillor F. M. Russell Davies, K.C.) for harmonious working between the several companies, the clause is to be amended so as to permit trolley omnibus services to run in both directions in such numbers and frequency as may be approved by the chief constable. This regulation will also apply to all other omnibus services.

Two of the three broad valleys already alluded to are traversed by trolley omnibus routes, which form part of the original circular route. The first of the two valleys, bounded by the west side of the Castle Hill and by Bohemia and Silverhill, has two lines which form the eastern face and western interior face of the circular route. These lines climb the ascents that lead up to the Ore-Harrow northern ridge, one being via Queen's Road and Mount Pleasant, and the other by way of Bohemia, Silverhill and Sedlescombe Road North. At Silverhill, which forms the northern apex of the second valley, the line is joined by a parallel line starting from a more northerly point at Hollington and running down via London Road to the sea front at Grand Parade, St. Leonards. This route may be described as the outer western face of the circular route.

The foregoing complete the existing lines that serve inland localities. The remaining line, taking the Memorial at Hastings as its starting point, runs along the entire sea front of St. Leonards to the adjoining resorts of Bexhill and Cooden. On reaching the western end of the St. Leonards Front, the road goes under the Bexhill, Pevensey, Eastbourne and Brighton Railway line and proceeds parallel with the railway to Bexhill and Cooden golf links. Under the 1927 Act a small alteration has been made in this route as compared with that of the tramway that preceded it. Just beyond the St. Leonards boundary the tramway occupied its own right-of-way for some five hundred yards across Pebsham Marsh. As this land was subject to flooding, the trolley route has been taken along the public road for about three-quarters of a mile

As in the adjoining county borough, the trolley omnibus route in Bexhill borough serves the best inland and sea front districts, and it forms a popular means of communication between the two boroughs, the services being much more frequent than those on the railway, besides giving passengers for business or pleasure the extra convenience of being set down at any point on the esplanades or in the commercial centres.

Appended is a list of the trolley omnibus routes in the two towns :—

	Route Length in Miles.
Circular Route.—From the Memorial, via Queen's Road, the Spa, Blacklands, Mount Pleasant, Ore, the Cemetery, Baldslow, Harrow, Silverhill and Bohemia to the Memorial	8·79
The Memorial to Silverhill and Hollington via the Front and London Road	2·88
The Memorial to Silverhill and Hollington via Bohemia	2·41
The Memorial to Ore and the Cemetery via Mount Pleasant	3·56
Ore to the top of High Street	1·09
The Memorial to Bexhill and Cooden	7·65
The Memorial, via the Fishmarket to Mount Road (Clive Vale), to join the Ore route	1½

New routes in the 1930 Bill are as follow :—

In the County Borough of Hastings :—

No. 1.—Battle Road in a northerly direction from a point in that road about 10·20 chains northwards from the junction of that road with Upper Church Road to Glen Road and including the turning point on private land at the termination of that route.

No. 2.—St. Helen's Road from St. Helen's Park Road to Park cross road, including the turning point at the termination of that route.

No. 3.—Hughenden Road from Hughenden Place to Mount Pleasant Road.

No. 4.—Elphinstone Road from St. Helen's Road to Mount Pleasant Road.

No. 5.—From the Albert Memorial along Havelock Road, Cornwallis Terrace and Cambridge Gardens to Cambridge Road.

In the Borough of Bexhill :—

From Devonshire Road along Western Road and Wickham Avenue to Cooden Drive.

Route 4 will provide a short cut to Mount Pleasant and Ore, and will enable passengers from and to the Memorial to avoid the present long ride via the Alexandra Park and Blacklands. Route 5 gives a connection with Hastings railway station, and the Corporation desires that the traffic shall be in one direction only, this restriction to apply to all public vehicles. This short line will be of hairpin shape, with the railway station at the bend, and the arrangement will be convenient for conveying passengers from the railway to the town. The half-a-mile of new lines proposed for Bexhill may be described as providing alternative and connecting facilities to portions of the existing routes. The other proposed extensions comprise a turning point and a very short loop.

Digitized by Google

A double-decker leaving the Memorial, Hastings, for the hilly route to Hollington.

Omnibus Depot at the Offices at Silverhill.

Digitized by Google

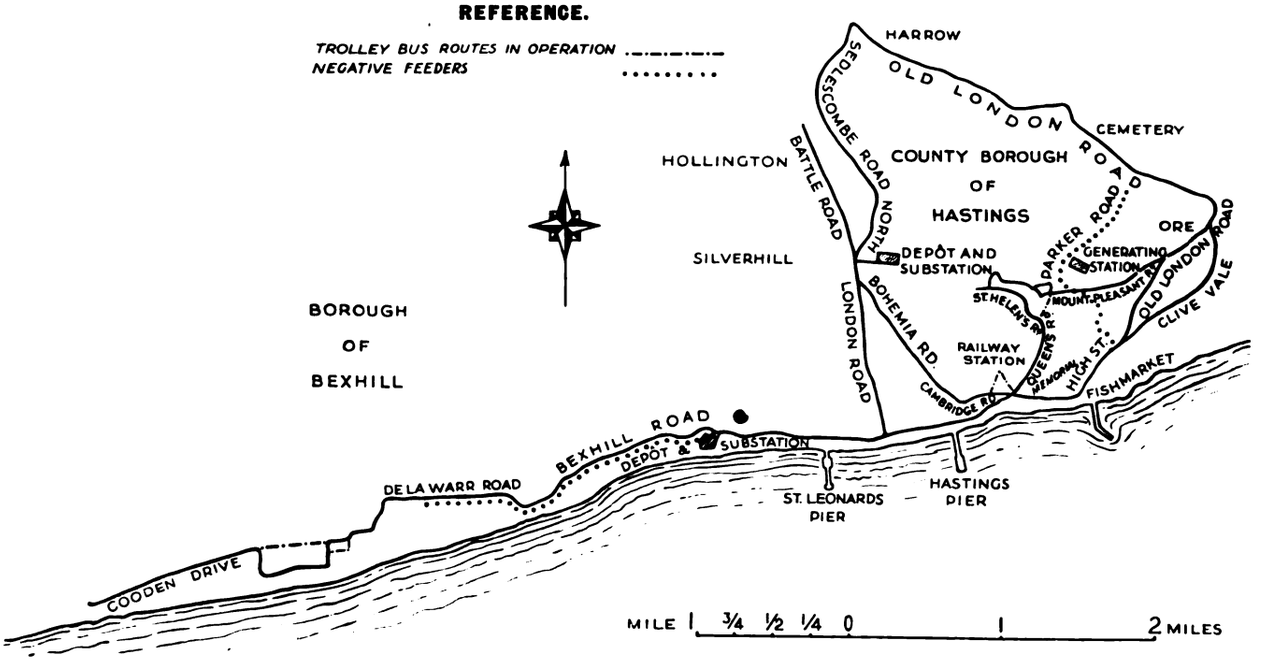
Than the single and double-deck trolley omnibuses there are no more attractive vehicles on the road in the district, and passengers are agreed upon their merits as regards ease of motion and comfort. Lower deck seats are upholstered in leather and are well sprung. The external finish is in maroon and cream. As a tramway undertaking the company operated 65 double-deck cars. Although there has been a great increase in the number of passengers, only 58 trolley omnibuses are required, the double-deckers seating 57 persons, and the single-deckers 37 persons. Generally speaking, the tramway fares in Hastings were always low, and no alteration has been made in the fares, as applied to the trolley omnibus. The average rate throughout the whole system is practically .9d. per mile.

Thanks to the creation by the Mayor of a conciliatory attitude between the local transport companies and between the Corporation and the Tramways Company, the competition and disputes of the past year are to end, and there is to be a division of traffic. It is proposed that the Tramways Company shall take about a half, three petrol omnibus undertakings to share the other half. The Tramways Company is to withdraw from their Bill the application for powers to operate petrol omnibuses and to restrict competition. As the Town Council is showing great enterprise in increasing the attractiveness of the town to visitors, local traffic is likely to be considerably augmented. One great task now in hand is an extension seawards of the esplanade from the Baths to the Fishmarket, a distance of nearly three-quarters of a mile. This will enable a new and wider road to be constructed along the whole of that distance, the parade also being widened.

Visitors will be interested to learn that the opportunity of effecting this widening is due to the vast bank of beach which has been collected by the abandoned western arm of the proposed harbour, aided by the great stone groyne which was to have formed part of the eastern arm.

Thirty years ago the sea came up to the parade walls which are now hidden in the shingle. Opposite the old Fishmarket the accumulation of beach has enabled a large covered parking station to be erected by the Corporation for motor coaches and cars, and as part of the sea front extension works plans have been passed for the construction of an underground parking station for two hundred cars in the centre of the town, between the Memorial clock and the Queen's Hotel. The great improvement of the Front will enable the roadway to be widened and provide an outlet for traffic past the Queen's Hotel, where the road now ends in a *cul de sac*.

Overhead Work at Hollington—Silverhill Junction.



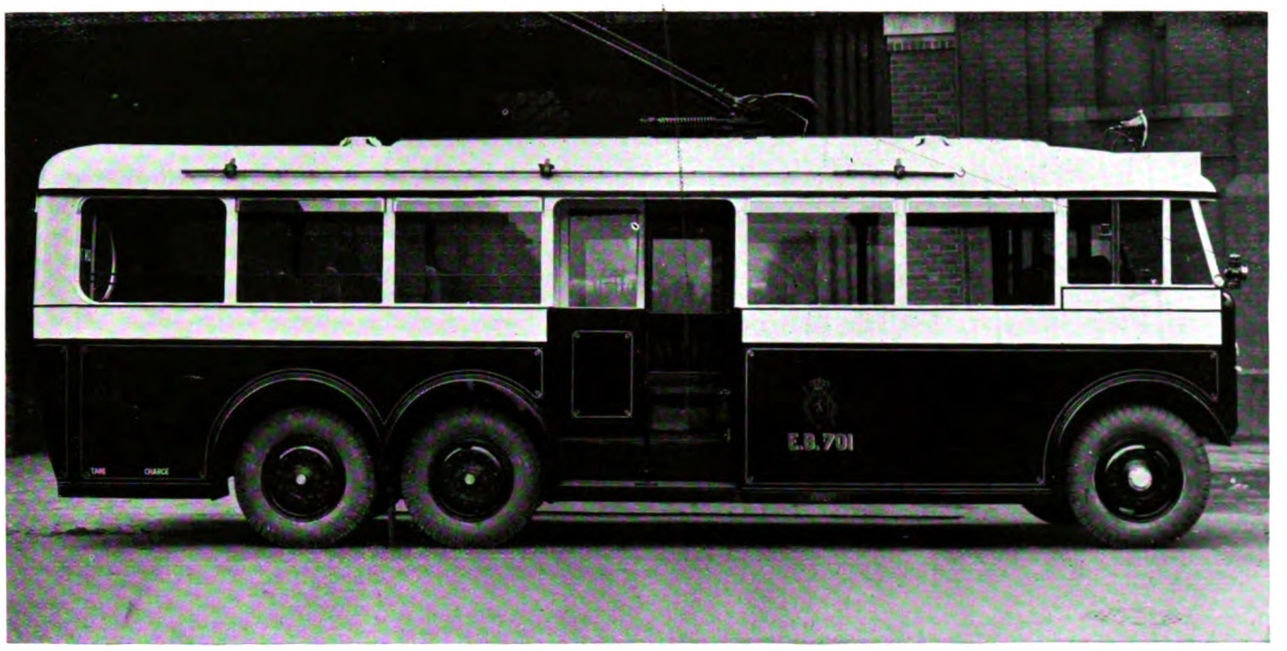
Outline map of existing and proposed Trolley Omnibus routes in Hastings.

Digitized by Google

GUY TROLLEY OMNIBUSES FOR ITALY AND BELGIUM.

PARTICULARS OF THE FIRST VEHICLE FOR BELGIUM.

It was recently announced in THE TRAMWAY AND RAILWAY WORLD that Guy Motors, Ltd., of Fallings Park, Wolverhampton, had received orders for a number of the latest single-deck trolley omnibuses made by them for Italy and Belgium. The first of these vehicles for Belgium has been shipped, and before being placed in service it is being shown at the Liége Exhibition. The accompanying illustrations show that the vehicle is of the centre-entrance, six-wheel type with one deck only.



A Guy Six-Wheel Trolley Omnibus for Service in Belgium.

Front View of Guy Six-Wheel Omnibus for Belgium.

One reason for the selection of trolley omnibuses for Continental use was the facility with which the vehicles can traverse narrow thoroughfares without creating congestion, for the trolley omnibus can draw as close to the foot pavement as any other independent vehicle. From the passengers' point of view this facility has a great advantage in wide streets, for the risk of accident is removed when the passenger is taken up and put down at the edge of the footpath. Operators, too, are impressed by the experience of Wolverhampton Corporation that four trolley omnibuses, with their greater flexibility and speed, will take the place of five tramcars. This has happened even on a route where double track has been displaced. On one route with heavy gradients the trolley omnibuses run over 200 miles each per day, the average speed under traffic conditions being considerably higher than that of the tramcar. The legal limit for the trolley omnibus is, of course, the same as for the pneumatic-tyred petrol vehicle.

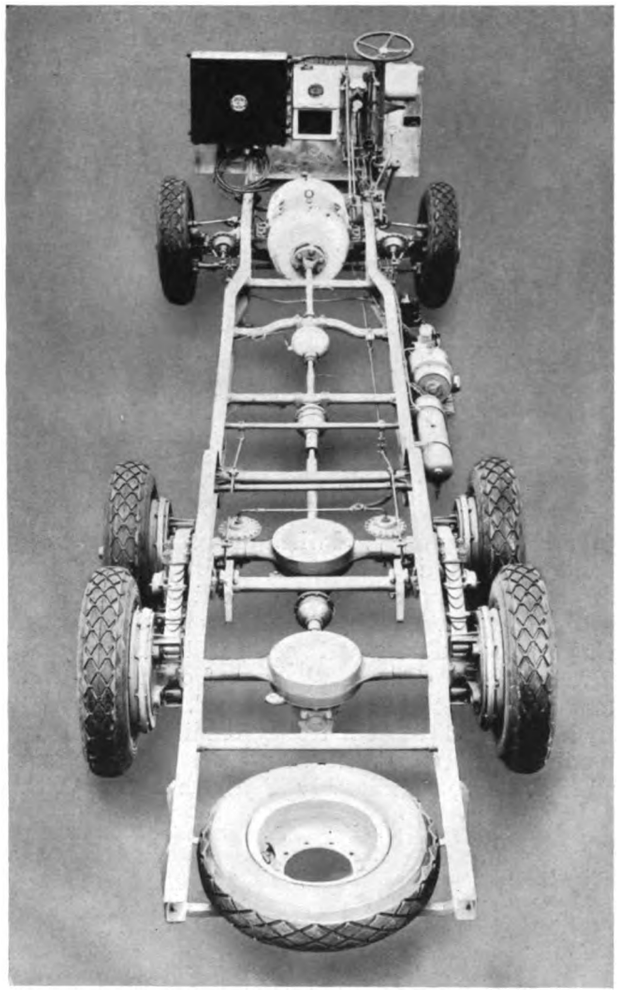
Interior View Looking to the Rear.

The Guy six-wheel chassis running on giant pneumatic tyres has effected a revolution not only in com-

Digitized by Google

fort for the passenger, but in the life of the tyres. The rigid six-wheel construction has been found almost entirely to eliminate wheelspin, thus materially reducing the tendency to skid. Combined with the special springing of the Guy duplex rear drive the six-wheelers set up less wear and tear of the vehicle generally.

An interesting feature of Guy trolley omnibuses is that by arrangement with the Rees-Roturbo Manufacturing Co., Ltd., the builders have the exclusive use of the Rees-Stevens patent system of trolley vehicle control. The motor is of the Rees-Roturbo special compound interpole manufacture rated for 60 B.H.P., 500 volts, at 900 to 2,500 r.p.m., with capacity for heavy overload in accordance with British Standard specification No. 173/1928 for traction motors. Magnets of high permeability steel are fitted with laminated steel main poles. Special aluminium end covers and ball and roller bearings serve to reduce the weight of the motor to a minimum.



Plan View of Guy Six-Wheel Trolley Omnibus Chassis.

Difficulties that attended earlier efforts to obtain regenerative control have been overcome by the Rees-Stevens system with its special compound wound motor.

In the regenerative system when the vehicle is coasting at more than a certain speed the motor becomes a generator, setting up a counter electromotive force and returning current to the line. Immediately the motor becomes a generator (on the over-drive) and returns current to the line, a resistance is automatically brought in with the line circuits so that in no circumstances can the lamps be over run. These circumstances include the contingency of a trolley pole coming off the line. A continuous circuit is provided. All the contactors come out and provision is made to prevent the circuits through the motor being closed when the wheel of the trolley pole is placed on the line until the controller is brought to the first contact—the correct starting position.

The motor provides smooth yet rapid acceleration and gentle retardation on down gradients and on the level, which results in a minimum use of mechanical brakes. The makers claim that there are no main road hills in England that would be unsafe for the Guy trolley omnibus to descend when using only the effect of retardation as a brake.

Besides the great saving effected in brake equipment there is a greater economy in current consumption. From tests that have been made in a hilly district a saving of ·3 unit per mile has been recorded, which is equivalent in England to over £50 per annum per vehicle. The makers show also that regenerative braking has an advantage on flat routes at speeds of between 14 and 25 M.P.H. Instead of dissipating the stored energy in heat and in the wear of the mechanical brakes, at least 50 per cent. of this energy will be returned to the line by regenerative braking, and this in addition to electrical power restored to the line through slowing up under traffic conditions.

The control gear consists of the Stevens patent combined drum type controller and shunt regulator mounted on an aluminium case. The controller actuates a contactor panel of standard manufacture. The starting resistance unit is of unbreakable non-corroding type designed for heavy duty traction service. A patent reversing switch is mechanically interlocked with the control lever so that the controller cannot be operated with the switch in the " off " position. The combination of shunt and series winding with regulating resistance gives an easy start and smooth acceleration.

It is only necessary to introduce resistance in series with the motor at speeds below 10 M.P.H., and even then only a small amount of resistance is required. Precautions are taken to prevent the voltage of the generator rising above the line voltage when coasting with the power pedal in the " off " position ; a resistance is automatically brought into circuit with the shunt winding which keeps the voltage of the machine within safe limits.

The chief feature of the chassis is the two Guy rear axles, both complete with differential and interconnected with universally-jointed driving shaft. As the axles are fully floating the weight of the vehicle and load is not carried on the axle shafts. The whole of the gears and internal parts of the axles can be removed without jacking up the vehicle or without using a pit. The wheels cannot become detached if an axle shaft breaks. Alternatively, the rear axle bogie can be wheeled away from the chassis.

Double cantilever springs are used at the rear. Owing to the independent movement of each of the four rear wheels, the shock or movement of the vehicle as a whole when passing over an obstacle is materially reduced. The front springs are of the half elliptical type. On the front axle the swivel pins are mounted on taper roller bearings, easily adjustable for wear. The steering is of the cam and roller type, and the steering column can be placed at different angles to suit various types of bodies. Approximate weight of the chassis is 78 cwt.

Digitized by Google

PROGRESS OF THE "ENGLISH ELECTRIC" TROLLEY OMNIBUS.

Inauguration of a New Series with the Associated Equipment Company.

Further particulars are now available concerning the announcement in our issue of March 13 that the English Electric Co., Ltd., and the Associated Equipment Co., Ltd., had arranged to collaborate in producing a line of single-motor low-loading trolley omnibuses. These vehicles, which are being put on test, will have as their basis the A.E.C. "Regal," "Regent" (four-wheel), and "Renown" (six-wheel) chassis, and will include single and double-deck types with the following wheelbases and seating capacities :—

Model.	Seats.	Decks.	Wheels.	Wheelbase.
				ft. in.
661T	50/52	double	4	15 6½
662T	30/34	single	4	17 0
663T	60	double	6	16 6

The last-mentioned will be available with a wheelbase of 18 ft. 7 in.

The Associated Equipment Co. will manufacture the chassis and components; and the electrical equipment and the omnibus bodies will be by the English Electric Company.

The vehicles of this series, in which a single motor is mounted forward in a similar position to that of a petrol engine, will be distinguished by their relatively light-weight and low-loading height. For those cases where a motor mounted in a forward position is not favoured, the complete "English Electric" vehicle, in which the motor of either single or twin type is mounted in the middle of the chassis frame, can still be supplied. With the twin type of motor, series-parallel control is obtainable when desired. The relative merits of the different types depend largely upon local considerations.

So great a reputation has been gained by the "Regal," "Regent" and "Renown" chassis of the Associated Equipment Company, in operation as petrol omnibuses, that their inclusion in "English Electric" trolley omnibuses is likely, to all accounts, to bring into existence a "super" trolley vehicle, if such an advance is possible. To devise an improvement in the "English Electric" machine may seem to be a difficult achievement, but with the technicians of two leading companies in collaboration the outlook from time to time should be most hopeful.

The English Electric Company is, of course, noted for pioneer work in trolley omnibus development and for its foremost position as manufacturers of these vehicles in the works at Preston, following a similar record in the field of tramway and tramcar construction. As builders of electrical equipment, bodywork, and complete vehicles for over thirty years, the company is able to apply a wide and varied experience which ensures that its products are adequate to the most exacting service conditions.

The English Electric Company constructed some of the first railless trolley equipments that were put on the road. Following the successful operation of a considerable number of "English Electric" railless equipments incorporated in chassis of various makes, the company has for three years past supplied complete vehicles from the Preston Works. Some of these are shown in the accompanying illustrations.

Latest Type of "English Electric" Trolley Omnibus at Nottingham, illustrating the Flexibility of the System.

Orders received in the past six months include twelve six-wheel, double-deck and eleven four-wheel, single-deck vehicles for Bradford Corporation, six four-wheel, single-deck for Darlington Corporation, six six-wheel, double-deck for Nottingham Corporation, and seven six-wheel, double-deck vehicles for Maidstone Corporation. With their top decks covered and forming an inviting saloon, the six-wheel machines seat 56 passen-

Digitized by Google

gers, 26 in the lower and 30 in the upper saloon. The double-deck type is 28 ft. in length and has a total weight, without passengers, of about 8 tons. The capacity of the single-deck omnibus is 34 passengers seated. It has a length of 26 ft.

Where the trolley omnibus has already been introduced the fleets are being continuously augmented, and the fact that deputations have come to England during the past half-year to inspect British installations show that this popular vehicle is also being introduced in various other countries. Bradford Corporation, after obtaining experience with these modern trolley omnibuses, placed orders for the 23 vehicles already mentioned, and there are now 57 in service.

It is the considered opinion of Mr. R. H. Wilkinson, the general manager of the Bradford Corporation Tramways, Trolley and Petrol Omnibuses, that the trolley omnibus has all the advantages of the tramcar and others in addition. In the paper on "The advantages and limitations of the tramcar, trolley omnibus, and motor omnibus," which he submitted to the Institute of Transport in February last, Mr. Wilkinson set forth the additional advantages of the trolley omnibus as being (1) ability to pass round an obstruction; (2) higher average speed and increased receipts; (3) the most silent vehicle in public service; (4) low "all-in" costs. In addition, Mr. Wilkinson laid stress upon the fact that the trolley omnibus provides a valuable load for any electricity supply station, thus relying on home-produced fuel. Mr. Wilkinson is of opinion that the latter item alone should have greater influence than it apparently has in determining the type of transport to adopt. General improvements and more efficient pneumatic tyres have, he says, given the vehicle an assured place in the transport world, and have made it the most serious rival of the tramcar for all kinds of town traffic.

Every part of the "English Electric" electrical equipment has been carefully designed to meet the special requirements involved, with the result that, although the general principles follow the lines of tramway practice, there are novel departures in certain details. The six-wheel vehicle has a twin 80-H.P. motor, having two armatures arranged to operate with series-parallel connections, which give the same flexibility and economies as a series-parallel tramcar equipment. The motor drives on both the back axles of the six-wheel omnibuses through a differential, and a differential drive is also fitted to each of these axles.

The controller, which is foot-operated, is mounted at the side of the driver's seat. It is of "English Electric" camshaft contactor design with four series notches, and one notch for reduced field. The design is extremely robust, with full provision for ease of inspection and maintenance. Connection is made with the trolley wires by the usual double trolley arms and wheels, and these have a range of 16 ft. on both sides of the vehicle centre line. For working the vehicles in the car depot a trailing skate controlled by a change-over switch is made use of, and it is interesting to record that this has given very efficient results when tested over considerable distances on tramway track with only one trolley in use. The necessary circuit breakers and resistances are fitted in suitable positions.

The rear bogie of the six-wheel vehicle has a special swivelling suspension to prevent any tendency to tilt

A Trolley Omnibus at Maidstone Deviating to Avoid Traffic.

Digitized by Google

during braking and to obviate any twisting strains on the springs. Three brakes are provided, namely, a foot-operated electric brake with four notches, an air-brake operating independently on brake drums attached to each of the six wheels, and a hand brake working on the four rear wheels. The air-brake equipment, supplied by the Westinghouse Brake and Saxby Signal Company, is designed so that the braking pressure on each pair of wheels is air-compensated.

The four-wheel omnibuses are propelled by a single 60-H.P. motor under the control of a foot-operated controller provided with six notches, inclusive of two for reduced field running. In this case the braking equipment consists of a foot-operated electric brake acting on all four wheels. In addition there is a hand brake operating on the rear wheels. In other respects these omnibuses are equipped on similar lines to the six-wheel vehicles.

Two recent orders received for "English Electric" trolley omnibuses are from Pontypridd and Southend-on-Sea. Pontypridd Council has ordered seven single-deck saloons, each to seat 32 passengers. These are of the three-axle type with a dual system of braking comprising air-operated brakes on all wheels and rheostatic braking. Both sets of brakes will be operated from one pedal, which first brings the electric braking into operation and then the air brakes. The power equipment will consist of a 60-H.P. 500-volt motor with roller bearings, and contactor type control with a foot-operated master controller.

The order from the Corporation of Southend-on-Sea is the first instalment in a scheme for an extensive trolley omnibus system. This order comprises two double-deck, top-covered, three-axle vehicles to seat 69 passengers. These vehicles will be provided with seating of a particularly luxurious type. The braking system will be similar to that of the Pontypridd

Another View in Maidstone.

omnibuses. A special feature will be a group system of lubrication, whereby the individual lubricating points will be connected in groups to accessible positions. There will be a front exit on the near side to facilitate quick unloading, and as there will be no step between the ground and the platform the loading height will be as low as 14 in. In these two omnibuses a twin 80-H.P. 500-volt motor will be fitted and the control will be of the contactor type.

Rounding a Sharp Corner at Nottingham.

In conclusion reference may be made to the fact that the English Electric Company find that on certain tramway systems where the conditions are suitable, trolley omnibuses will show improved financial results, to which the absence of road and rail maintenance contribute in no small degree.

BELFAST ROLLING STOCK PROGRAMME.

New Cars and Omnibuses.

At a recent meeting of Belfast Tramways Committee, Mr. W. Chamberlain, the general manager, reported that two local firms had submitted tenders for fifty tramcar bodies. One of these—the Service Motor Works, Ltd.—was the lowest, and they offered to make ten bodies at the price quoted by them. The manager recommended that contracts be placed as follows:—Ten car bodies, the Service Motor Works, Ltd., at £1,500 each, including the sum of £100 per body for contingent work; forty car bodies, the Brush Electrical & Engineering Co., Ltd., Loughborough, at £1,697 10s. each, including the sum of £100 per body for contingent work.

Councillor McClure, chairman of the Committee, expressed regret that the general manager had been unable to place locally more of the contracts. The Committee had extended special facilities for having the tramcars and omnibuses built in Belfast. They asked for tenders for whole tramcars or omnibuses, for fifty tramcar trucks, and for fifty tramcar equipments. Similar proposals were made with regard to tenders for omnibuses. The Committee had been anxious to place the contract for bodies or any portion of them that could be built in Belfast, but the Committee were dealing with the ratepayers' money, and they could not give a contract to a firm which was going to charge them half as much again. During the last twelve months the tramway rolling stock had received attention such as it had never had at any time. When the general manager came to Belfast he found that cars had not been inside the depot for painting for years. Mr. Chamberlain's plan was that every car should pass through the repair shops once a year.

The Council have decided to apply to the Minister of Home Affairs for Northern Ireland for sanction to loans of £50,327 for the provision of omnibuses, £110,000 for the provision of tramcars, and £50,000 for the reconditioning of tramcars.

Digitized by Google

THE
Tramway and Railway World
FOUNDED IN 1892.
Offices:
AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2
Telephone: TEMPLE BAR 2948
Telegrams: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD *can be obtained at the following rates*—

FOR THE UNITED KINGDOM—Twenty-five Shillings per annum.
FOR ALL PLACES ABROAD—Twenty-five Shillings per annum. Postage to Canada 6s.; to other places abroad, 9s. 6d.
Single Copies—One Shilling (Postage, 2 pence—abroad, 5 pence).
All back numbers—Two Shillings.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS.

The Editor will consider contributions offered for publication in THE TRAMWAY AND RAILWAY WORLD (including the Omnibus and Coach Section) by those conversant with the subjects that come within the scope of this journal. All information of a practical character relating particularly to the engineering and operating branches of transportation will receive prompt attention. Original illustrations will also be welcome.

LONDON, MAY 15, 1930.

London Traffic Neglected.

There can no longer be any doubt that whatever proposals the Government may contemplate for the solution of the London traffic problem, these will not be passed into law during the present session of Parliament. The situation is not merely disappointing but disheartening to all the parties concerned. In every session of Parliament the Government of the day have in the closing weeks, owing to lack of time, to drop many of their Bills. Those which survive are the more important from the political point of view. The solution of the London traffic question is not important from the general political point of view; it is, though it should not be, a political question to a certain extent locally. It is a financial question on one side, and a matter for the provision of improved transport facilities for the public on the other. Why it seems impossible that anything in the way of legislation can be done this session is plain. The Government have not even presented a Bill on the subject. Whether they have even formulated a plan on which to base a Bill remains unknown. A heavy responsibility rests on them. After years of inquiries by various official bodies and after some more years of negotiations between the London County Council and the Underground Railway and omnibus Companies, a scheme for common management, a common fund, and general co-ordination was hammered out, with provision for allowing all other London passenger transport authorities to join in. Every body concerned, including the London Traffic Advisory Committee, supported the scheme, with the exception of some local authorities in the east end of London. The Bills promoted by the County Council and the Underground Group successfully passed through Parliament, but when as a consequence of the last general election they had again to be reviewed, they were thrown out on the advice of Mr. Morrison, the Minister of Transport. Probably no greater disservice was ever done to London. Mr. Morrison promised that he would immediately devise a new scheme with more of public control for the whole of London passenger traffic. No such scheme is yet forthcoming. No one seems to know when, if ever, it will be. Past experience in connection with projects of the Ministry of Transport is not encouraging. The Road Traffic Bill, which is now before Parliament, was first issued in draft two or three years ago. Perhaps a draft of Mr. Morrison's bantling about London will be circulated, so that it may be discussed for a year or two, and be ultimately fledged into a Bill. Then the growing intensity of the traffic problem may result in it being pushed through Parliament. It can hardly be expected in any case that it will be better than the excellent scheme which was, after much labour, evolved by the London Underground Companies and the London County Council.

Rejuvenated Tramways.

As is well known, a number of the smaller towns in this country which operate tramways have converted them to the trolley omnibus system with very satisfactory results, and other towns are following the example. The reason for the change has often been explained in these columns. The fact is that some of the smaller tramway undertakings have not been able to build up sufficient reserves for track renewal, and the cost of that is, of course, a much more formidable affair than it was before the war. Then they have become more and more subjected to the competition of omnibuses whose permanent way is provided for them gratis (apart from licence duty) by the ratepayers. There is, however,

Digitized by Google

another class of tramway undertakings—those in the great towns, where it is unthinkable that the vast traffics which they carry could be as well dealt with by the railless trolley car or by the omnibus. Such tramway undertakings have also felt the pressure of omnibus competition, and they have not only sufficient resources to meet it, but—at long last be it said—have found out how to do it. Apart from matters of improved organisation, economy and efficiency in maintenance and repairs—all of which are receiving due attention—the two great factors of rejuvenation are more comfortable cars and higher speeds. In other words, the provision of more powerful motors, so as to get higher speed, and the spring upholstering of car seats are working wonders. Two examples may be cited from figures published at the end of April. The London County Council Tramways for the year ended March 31 last show a net surplus of £52,570, as compared with net deficits in many previous years. For the financial year now beginning, an estimate has been made that there will be a net surplus of £89,000. These figures are reached after making allowance for the heavy interest and sinking fund charges arising from the use of the conduit system on most of the routes. The other example is that of Glasgow, till within recent years when omnibus competition developed, one of the most prosperous tramway undertakings in the country. In recent times it showed a net deficit. As the financial year in Glasgow does not end till May 31, it is not yet possible to say what the result of working will be. But a return recently issued shows that from June 1 last year to April 12 last the traffic receipts of the tramways showed an increase of £31,445, compared with the corresponding period of the previous year. This is attributed to the new cars and the reconditioning of the old ones. When the annual accounts appear they ought to be somewhat cheerful, and the same may be hoped in regard to various large cities in England, where car modernisation is in progress.

Charing Cross Bridge.

Rejection of the London County Council (Charing Cross Bridge) Bill by the private Bill Committee presided over by Sir Henry Cautley is doubtless regrettable from the point of view of the promoters. It is less so from the viewpoint of those who visualise a future London of broad highways designed to admit the maximum of sunlight and air; of attractive vistas which rest the eye and soothe the mind; a London in which traffic circulates swiftly and smoothly, where locomotion is no longer an agonising endurance racking to nerves and trying of patience. Realisation of such a worthy ambition demands a quality of foresight amounting almost to prophetic divination, but there is no evidence that such a gift is possessed in any great measure by the powers responsible for re-planning the area embraced by the London County Council's Bill. Indeed, the scheme submitted and the Council's attitude in the matter are more indicative of a lack of imagination. There does not seem to be any justification for the statement, made on behalf of the promoters, to the effect that if the Bill was rejected they saw no prospect of securing the national improvement represented by a new road bridge at Charing Cross. No one will deny that replacement of the existing ugly bridge which carries the Southern Railway across the river by a new and beautiful road bridge could justifiably be called a national improvement. But the same cannot be said of the proposal to adapt the splendid site at present occupied by the Lion Brewery to the accommodation of a railway station, or of the resulting series of depressing tunnels which such a scheme would inflict upon the long-suffering Surrey side. If vast sums are to be spent upon acquiring existing property which is to be swept away, the newly garnished area must be designed to form the nucleus of a town-planning project worthy of our great city. Such opportunities are of necessity rare. That afforded by the Charing Cross proposal demands a scheme boldly conceived and nobly executed. The Committee concerned with the examination of the present Bill has rightly refused to accept the responsibility of endorsing the ill-advised project submitted to them by the London County Council.

Diesel Engine Progress.

One of the most interesting phases of the development of the internal combustion engine, and perhaps the most remarkable, is the rapidity with which the Diesel engine has advanced to a position in

Digitized by Google

the front rank of large power-producing units. Explosion engines, designed upon Daimler's principle, had made very considerable progress before the first Diesel engine was built. Much patient work on Diesel engines followed, but comparatively little headway was achieved before the war and the Diesel engine was, in many quarters, regarded as a cumbrous and somewhat unreliable piece of machinery. During the last fifteen years, however, the progress made has been remarkable and the type of construction adopted to-day is so extremely simple that Diesel engines can successfully use as fuel the lowest grade oils, such as cheap oil residues and tar oils. Single units with an output of several thousand horse-power are now to be found in all branches of industry and the fact that many large ocean-going liners are propelled entirely by Diesel engines dispels any lingering doubts as to their reliability. Not the least important of the advantages offered by their use is the great saving in space effected by the elimination of steam-raising plant and the consequent economy when engines are standing by. The adoption of Diesel equipment for the new 30,000 H.P. generating station of the Compagnie Francaise de Tramways et d'Eclairage Electriques de Shanghai, which is described elsewhere in this issue, marks a further stage in Diesel engine progress that will not pass unnoticed by power station engineers all over the world.

Medical Examinations for Public Vehicle Drivers.

The sudden death of a Manchester tramcar driver while in charge of a tramcar raises a point of great importance to the travelling public. Fortunately the sad affair in question was not attended by any untoward result so far as passengers in the vehicle were concerned, but this does not minimise the necessity of taking such steps as are possible to endeavour to prevent a similar occurrence with, perhaps, more serious results. The life of a public vehicle driver is an arduous one. Exposure, for long hours, in all weathers, to the strain imposed by the traffic conditions existing to-day not only makes serious demands upon health, but may facilitate and even aggravate those derangements of the human system which lead to sudden collapse. The unfortunate Manchester driver who collapsed was fifty years of age and he had been a valued servant of the Manchester Corporation Tramways Department for many years. Evidence which was submitted at the inquest was to the effect that death was due to hemorrhage following upon a cerebral tumour. It seems not unlikely that such a condition would have been manifest to a medical practitioner had the man been submitted to examination. Dangerous ailments which lead to fatal conclusions are frequently of such an insidious nature as to leave the victim quite unaware of their onslaught. It is for this reason that the opinion expressed by the coroner who conducted the inquest at Manchester that a periodical medical examination should be made of drivers of public service vehicles is deserving of serious attention by those responsible. It was stated on behalf of the Manchester Tramways authorities that it had been decided to have a medical examination of all drivers of Corporation omnibuses and tramcars. It was not made clear, however, that such examinations were to be of a periodical nature, which they must be if they are to be of effectual service. It is to be hoped that the lead of London and Manchester will be generally followed by operators of public service vehicles.

THE TRAMWAYS, LIGHT RAILWAYS AND TRANSPORT ASSOCIATION.

Programme of the Annual Congress.

The Annual Congress of the Tramways, Light Railways and Transport Association will be held at Hastings on June 11 to 13. Special carriages will be attached to the train leaving Charing Cross Station on Wednesday, June 11, at 4.20 p.m., for the use of members on presentation of the Congress badge. An informal reception by the Chairman of the Council (Mr. E. H. Edwardes) will be held at the Queen's Hotel at 9 p.m. on Wednesday.

The programme for the Congress is appended :—

Thursday, June 12.

10 a.m.	Official reception by the Mayor of Hastings (Mr. Russell-Davies, K.C.) at the Queen's Hotel.
10.30 a.m.	Thirty-third annual general meeting.
11 a.m.	Paper : " Notes on Substituting a Trolley-Omnibus System for a Tramway," by Mr. W. Vincent Edwards, A.M.I.E.E., general manager and engineer, Hastings Tramways Company. Followed by a discussion.
1 p.m.	Luncheon at Queen's Hotel by invitation of the Mayor and Corporation of Hastings.
2.30 p.m.	Demonstration of motor omnibuses at the Cricket Ground, followed by an excursion to Winchelsea and Rye. Tea at Queen's Hotel, Hastings.
7.30 p.m.	Members will dine informally.

Friday, June 13.

10 a.m.	Paper : " The Tramcar : Present and Future," by J. L. Burton, manager, Road Transport Department, English Electric Co., Ltd., assisted by H. H. Andrews, sales manager, Traction Department. Discussion will follow.
1 p.m.	Luncheon at White Rock Pavilion, at the invitation of the chairman and directors Hastings Tramways Co.
2.30 p.m.	Excursion by motor coaches to Bexhill, Pevensey Castle and Hurstmonceaux Castle, returning via Battle Abbey. Tea at Horselunges Manor, Hellingly.
7.30 for 7.45.	Members' annual dinner at the Queen's Hotel, the evening concluding with a dance.

Communications should be addressed to Mr. A. De Turckheim, general secretary, 58, Abbey House, Westminster, S.W.1.

Digitized by Google

RETIREMENT OF LONDON'S TRAMWAY CHIEF.

RECOGNITION OF MR. BRUCE'S SERVICES TO LONDON.

The announcement that Mr. J. K. Bruce, the general manager of the London County Council Tramways, will retire from his position on June 30, in consequence of ill-health, has been received with much regret. On one or two occasions since he assumed his high responsibility five years ago Mr. Bruce has suffered from illness, but, sturdy Scot as he is, his devotion to duty has kept him at his task perhaps longer than was wise. The Council's medical officer has now certified that he is physically unfit to carry out his duties, and he will retire at a time when the undertaking is assured of a successful future.

The period during which Mr. Bruce has directed the Council's tramway undertaking has been a critical and exacting time. Long before his appointment he stood almost alone in his belief that the tramway undertaking, although beset with enormous difficulties, could be made a sound and profitable enterprise. That it is essential to London and must be carried on was a basic principle in his conception of the position. A second principle that has guided his action is that only the best is good enough for London. Entering on his work with these ideas, Mr. Bruce gradually won to his support the Highways Committee, and his proposals were accepted with increasing confidence.

His long experience of London traffic had given him unrivalled knowledge of the conditions and requirements of the service; and his determination that the Council's undertaking should meet the public needs was irresistible.

It was fortunate for London that its tramway chief was a tramway optimist, for the position in 1925 would have daunted anyone who was not a convinced believer in the unsurpassed utility of tramways for coping with heavy city traffic. To visualise success at that time required both expert knowledge and courage. Intense omnibus competition, falling receipts, and a general impression of defeatism were the predominating factors. It was generally supposed that if it were not for the millions sunk in the tramways they would be abandoned as out-of-date, and that they could never be made an asset to the Council. Gradually the general manager infused a new spirit into the undertaking. For many years he had been maturing plans for reform, and his opportunity came with his promotion. No time was lost, and one department after another felt the invigorating influence that characterised the management. Efficiency was increased and economies were effected wherever careful investigation showed that new methods could be introduced without detracting from safety and good service. Surprising economies were secured in the care of the permanent way, and wise expenditure in improving facilities and plant enabled the rolling stock department to carry on the work with increased economy and success. Better cars, better equipment, and higher speed followed. Various changes in fares also helped to win back traffic from the omnibuses, and gradually the receipts showed an increasing tendency. There were periods of reaction when criticism revived, but the management never faltered; and the present position and prospects of the undertaking have thoroughly justified the support which the chairman and members of the Highways Committee gave to the general manager during the years when he was gradually recreating the undertaking so as to adapt it to modern needs and conditions.

The retiring general manager, indeed, succeeded in transforming the undertaking from three points of view, namely, that of passengers' comfort, speed of the services, and the financial results. Mr. Bruce's achievement has been liberally acknowledged by the County Council. The General Purposes Committee reported on April 15 that they "considered Mr. Bruce's services to London in his position as general manager of the tramways merited special recognition," and they recommended that a grant of £2,000 should be made to him. Their recommendation was unanimously adopted by the Council. On retirement Mr. Bruce is entitled to a pension of approximately £805 a year, together with a lump sum of £2,426.

Mr. J. K. Bruce.

In July, 1928, three years after he had been appointed general manager, the Council recognised his reforming zeal even though the results had not developed to the notable extent seen in 1929 and during the present year. The recognition took the form of a grant of £2,000. In making the recommendation the General Purposes Committee stated that the improvements in the administration and development of the undertaking had been striking, and as an example they mentioned that in three years the annual working expenses had been reduced by nearly £300,000. In addition to carrying on the administration of the tramways, Mr. Bruce (the Committee added) was engaged on the overhaul and re-organisation of the work in all branches of the department with the object of securing an efficient and economical organisation for meeting the increased demands of the tramway service. On the same occasion a grant of £500 was made to Mr. F. W. Mackinney, chief officer of supplies,

Digitized by Google

in connection with the re-organisation of tramway stores.

Mr. Bruce, who is 58 years of age, is a native of Strathmore, and his connection with London's tramways began in the horse car era, when he was veterinary surgeon to the London Tramways Company, and he also had charge of the depots. When the undertaking was acquired by the County Council in January, 1899, Mr. Bruce's services were retained, and he had for his chief the late Mr. Alfred Baker, afterwards general manager of the Birmingham Corporation Tramways. Mr. Bruce took part in the exacting work attending the electrification of the various sections. The greater part of this task was supervised by Mr. A. L. C. Fell, formerly of Sheffield, who was appointed chief officer of the undertaking when Mr. Baker left for Birmingham. In October, 1903, Mr. Bruce was appointed traffic manager, and in 1910 he was promoted to be deputy chief officer. Towards the close of the war Mr. Bruce had charge of the undertaking during an illness of Mr. Fell. When that gentleman retired, Mr. Bruce, in 1924, was appointed acting general manager, and in January, 1925, he was chosen as general manager without the appointment being advertised as vacant.

In recommending that the promotion be made permanent the Highways Committee reported that Mr. Bruce had been very successful in operating the tramways, and had initiated improvements of a striking character which had effected considerable savings. The improvements have since been even more marked. In the public eye they are indicated by the higher speed resulting from the fitting of the cars with two 60-H.P. motors, and by giving the cars a Pullman standard of comfort with upholstered transverse seats and improved lighting. The speeding up of the cars also resulted in the withdrawal of the trailer cars which had rendered valuable service, especially during the war when new cars were unobtainable.

The more powerful motors, besides raising the average speed, lessened the number of new cars necessary to meet the increasing needs of the traffic. Great economy has been effected by the introduction of car-washing machines; and the track has been maintained in first-class condition. It now exceeds 165 route miles. Other improvements include the introduction of cars for speedy and safe operation on hilly routes, and the use of improved breakdown lorries which greatly reduce delays due to tramcars or other vehicles obstructing the track.

The crowning stone of Mr. Bruce's still uncompleted work is to be seen in the fact that for the year 1929-30 the undertaking has produced a net balance, after meeting all charges, of £52,570. This highly encouraging result follows ten years' unfavourable results that necessitated a call on the rates to a total of over £1,500,000.

Mr. Bruce is a member, and former member of the Council, of the Institute of Transport. From November, 1919, to January, 1925, he was a member of the sub-committee of the Advisory Committee on London Traffic which dealt with traffic regulations before the formation of the London and Home Counties Advisory Committee under the London Traffic Act. Like the present Committee, the earlier body accomplished a great deal of work that facilitated public passenger traffic in the metropolis. One reform in which good work was done was the institution of stopping places for omnibuses some distance from tramcar stops.

LONDON COUNTY COUNCIL TRAMWAYS.

Successful Financial Results Mainly Due to the Reorganisation by Mr. J. K. Bruce.

The estimates of the London County Council Tramways for the year 1930–31 were submitted at the meeting of the Council on April 15. The accounts for the year 1929–30 will, it is hoped, be completed about the end of June. The approximate results for the year ending March 31, 1930, show a net surplus amounting to £52,570 after deducting debt charges. The figures are as follows:—

		1929 30 £
Total receipts, including advertisement rents, etc.		4,413,450
Working expenses, including renewals and special charges		3,638,505
Surplus on Revenue Account		774,945
Deduct: Debt Charges	£759,120	
Less: Excess of income over expenditure on other items (net revenue account)	36,745	
		722,375
Net surplus		52,570

Estimated Net Surplus of £89,411 for 1930–31.

For the year 1930-31 it is estimated that the passenger receipts will average 14.91d. a car mile on a car mileage of 69,938,250. The net working expenses, including special charges and renewals, are estimated at 12.191d. a car mile. On the basis of these estimates the anticipated results of the working of the tramways for the financial year ending March 31, 1931, are as follows:—

	£
Total receipts, including advertisement rents, etc.	4,429,300
Gross working expenses, including renewals and special charges	3,601,725
Estimated surplus on revenue account	821,575
Deducting debt charges amounting to £773,129, *Less* Excess of income over expenditure on other items (net revenue account) £37,965, there is an estimated net surplus of	89,411

The surplus on working each year since 1926–27 has been as follows: 1926–27, £200,601; 1927–28, £522,958; 1928–29, £688,957; 1929–30, £774,945. During the financial year 1926–27 there was a complete stoppage of the system from May 4 to 13, 1926, inclusive, owing to the General Strike, and this has resulted in a loss to the undertaking of £74,000. The dispute in the mining industry added considerably to the working, and the additional cost of coal is estimated at approximately £152,000.

Particulars of Working in Recent Years.

The following tables give information regarding the working of the tramways for the ten years ended March 31, 1930:—

Year ended Mar. 31.	Length of route operated by Council at Mar. 31.	Car miles run.	Average passenger receipts a car mile.	Average net working expenses a car mile.	Total number of passengers carried.	Passenger traffic receipts.
	miles		*d.*	*d.*		£
1921	143.57	57,488,232	19.91	19.81	689,452,036	4,769,477
1922	155.83	59,532,081	20.39	18.29	688,151,316	5,058,065
1923	160.71	63,381,367	18.13	15.01	733,811,367	4,788,317
1924	163.51	61,118,565	16.04	14.13	689,015,086	4,285,761
1925	164.14	68,068,216	14.63	14.08	682,595,733	4,148,923
1926	164.44	68,530,795	14.53	13.56	690,222,969	4,148,998
1927	165.35	67,113,143	14.28	13.69	667,103,489	3,993,601
1928	165.72	69,890,518	14.37	12.70	705,762,261	4,185,550
1929	166.28	70,170,486	14.62	12.38	712,691,996	4,271,010
1930	166.28	70,838,250	14.65	12.14	719,000,000	4,325,000

PAYMENTS OUT OF REVENUE BEFORE ARRIVING AT SURPLUS OR DEFICIENCY IN COLUMN 6.

Year ended Mar. 31.	Rates on permanent way.	Street widenings (debt charges).	Debt charges (excluding widenings given in col. 3).	Maintenance of paving along tramway routes.	Surplus or deficiency.
	£	£	£	£	£
1921	140,831	28,222	562,443	253,000	—590,580
1922	79,871	28,519	619,082	245,000	— 88,757
1923	69,056	29,633	682,510	269,502	+232,327
1924	61,405	30,515	715,452	255,000	—160,222
1925	59,933	30,906	†452,989	240,000	—278,441
1926	60,822	30,456	†465,563	235,000	—114,629
1927	31,191	30,428	†502,985	233,500	—275,159
1928	30,681	30,108	751,983	233,500	—226,210
1929	28,503	29,866	710,505	233,500	— 6,790
1930	27,100	29,928	729,192	233,500	+ 52,570
1931	27,100	29,402	743,727	230,350	+ 89,411

† The lower figures for 1925 27 inclusive are due mainly to the temporary suspension, with the approval of H.M. Treasury, of repayment of debt in respect of certain capital expenditure.

Digitized by Google

Considerable economies are reflected in the improvement in the surplus on working, as shown above, and in addition there has been an increase in traffic receipts largely due to the reconditioning of tramcars with transverse seats, etc. On March 31, 1930, 1,438 reconditioned cars were in service and 150 new cars will be put into service during the current financial year.

The Highways Committee state that such a satisfactory condition of affairs could have been achieved only by the whole-hearted co-operation of all grades of staff, and they record their appreciation of the efforts of the staff in securing the improved financial position of the undertaking. With respect to the future, the Highways Committee do not suggest that finality has been reached in economy, and they point out that an important factor is that within the next few years a considerable portion of the short term debt incurred will have been wholly repaid, involving relief in annual debt charges. In five years' time the reduction in these charges will be approximately £207,000, and in ten years' time £440,000.

The Council's system of tramways now has a route length of 166.3 miles, comprising 43 miles of the overhead trolley system and 123.3 miles of underground conduit. These figures include the tramways (eight miles in length) belonging to the Leyton Corporation.

The amount of the debt incurred up to March 31, 1930, was £18,184,907. The net debt, after allowing for debt repaid and sinking fund balances, is £8,364,170. The amount to be voted on capital account for the financial year ending March 31, 1931, is £742,655, the principal items including construction of 150 new cars, the deepening of the tramway subway from the Victoria Embankment to Southampton Row, and the reconstruction of single-deck cars, expenditure on new plant at Greenwich Power Station, and construction of new tramways.

Mr. F. B. Galer, in introducing the estimates, said that this year was the first occasion for some years that the Council was able to look back on a year which showed a profit. The improvement had been largely effected by revised methods of working, and it was mainly due to Mr. Bruce's successful reorganisation that their enormous undertaking, which had been a serious liability, had been converted into a valuable asset. In 1924–25 the gross surplus on working was £193,315, whereas in 1929–30 it had risen to £774,945. The actual reduction in cost of working was £411,199. The improvement in the speed of the cars had resulted in reducing the number in use by 47. Running and maintenance charges had thereby been reduced by £84,700. The reorganisation of repair work had reduced the percentage of spare cars required from 17½ to 10, and in order to run present services it would have been necessary to have had 122 additional cars. If at the end of the year their hopes were realised and there was again a profit, the position of the ratepayers should be seriously considered. Since the year 1920 the rates had provided a total sum of over £1,500,000 in order to meet the deficit on working. The million and a half had been borrowed from the ratepayers without interest, and some return was due to them.

The estimates were adopted.

ADVANTAGES OF "FRONT EXIT" CARS.

At a meeting of Newcastle City Council on May 7 the comparative advantages of front-exit tramcars, which have been in use in Newcastle for many years, were discussed. It was claimed by some speakers that the use of the front exit was the cause of accidents. Alderman R. Mayne, chairman of the Tramways Committee, said that the Committee were anxious to provide in every way for the safety of the citizens, and it was for that reason largely that the front-exit system had been adopted. The front-exit system was introduced during the war with the authority of the Board of Trade, and Mr. Mayne said they were so pleased with the working of the system that they recommended it to other cities. Newcastle had at present 154 front-exit cars and 16 rear-exit cars. Before the change-over in 1916, the average annual amount paid in damages by the Transport Committee was £2,111, and for the four years following the average was £959. This included damages caused by collision. There were no damages for accidents to passengers. The number of platform accidents has been greatly reduced by the use of the front-exit system. The motorman is able to see the passengers safely off the car in a way which would be impossible for the conductor who has many other duties to occupy his attention.

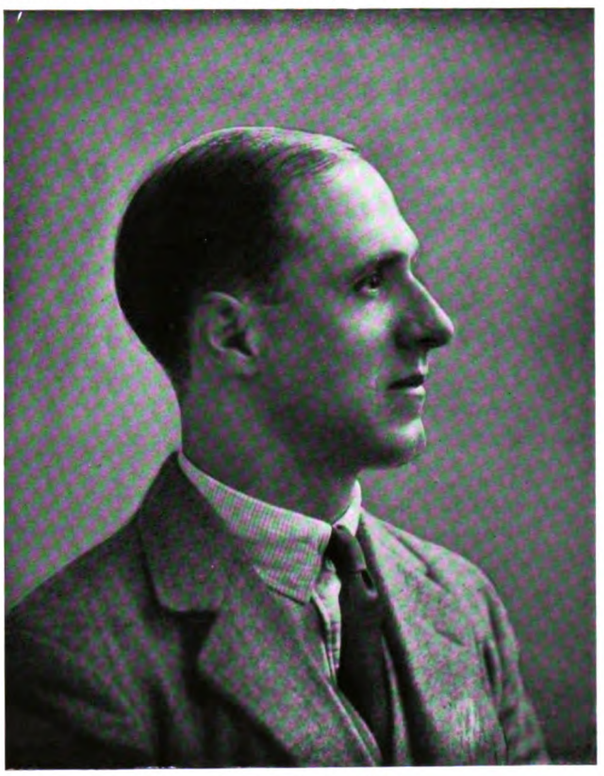
Accidents on the tramways had, in fact, practically disappeared, but the growth of general traffic had led to an increase in the number of street accidents. People must, said Alderman Mayne, use their judgment when leaving the tramcars, and crossing roads. They did not sufficiently realise the changed conditions of the roads. Accidents occurred, not from getting off the cars, but from crossing the street without due care on the part of the passengers and motorists overtaking them.

L.C.C. ASSISTANT ROLLING STOCK ENGINEER.

APPOINTMENT OF MR. G. F. SINCLAIR.

When the Highways Committee of the London County Council decided some time ago that it would be advisable to appoint a new officer to be styled assistant rolling stock engineer, they stated that the improvements which were taking place in connection with the rolling stock made it essential that the Council should be kept in closest touch with all developments applicable to tramcars. There was also the need, the Committee added, for ensuring that those parts of the tramcar equipment which are peculiar to the conduit system should be of such design as to reduce to a minimum the possibility of breakdowns. The new position, the Committee advised, should be created primarily for the purpose of research, but the new officer should have general authority to supervise the work of the rolling stock branch under the rolling stock engineer.

At the meeting of the Council on April 15 the Committee reported that in reply to advertisements inviting applications for the new position forty-five applications were received. Seven of the candidates had been interviewed and the Committee submitted names of two candidates, Mr. Alfred Edward Cook and Mr. George Flett Sinclair, whom they considered the most suitable. Although under the Standing Orders three names should be submitted to the Council the Committee said that they were not prepared to submit



Mr. G. F. Sinclair.

more than two names and they recommended that that portion of the standing orders should accordingly be suspended. The Council agreed, and Mr. G. F. Sinclair was appointed assistant rolling stock engineer. The salary of the position has been fixed at £1,000 per annum, rising by annual increments of £50 to £1,200.

Mr. Sinclair received his early training with Dick Kerr & Co., Ltd., at Kilmarnock, and after war service with the R.A.F. he specialised in electric traction at the Dick-Kerr Works of the English Electric Co., Ltd., at Preston. Mr. Sinclair was also for a number of years a member of the selling organisation of the English Electric Co., being particularly concerned with the tramway and railway side of the business. For the past four-and-a-half years he has been general manager of the Kilmarnock Engineering Co., Ltd., specialising in electric rolling stock of all descriptions.

BRITISH ELECTRIC TRACTION CO.—The profits for the year ended March 31, 1930, totalled £253,081 against £196,995 for the preceding year. The directors recommend a cash dividend of 5 per cent., less tax, on the deferred ordinary stock, and a bonus of 10 per cent. in fully-paid £1 deferred ordinary shares. These distributions entitle the holders of the 6 per cent. cumulative participating preference stock to a further 1.89 per cent. (against 1.67 per cent.) by way of participating dividend, making 7.89 per cent. for the year ended March 31, 1930. A balance of £65,547 (against £14,025) is added to undivided profits account.

Digitized by Google

TRAMWAY AND LIGHT RAILWAY NOTES.

BELFAST.

BIG EXPENDITURE ON NEW CARS AND OMNIBUSES.

The Finance Committee of Belfast Corporation has approved of a proposal of the Tramways Committee to borrow £200,000 for the following objects: New tramcars £110,000, new motor omnibuses £100,000, modernisation of tramcars £50,000. It is not intended at present to recommend the carrying out of the trolley omnibus proposals included in the Corporation Bill.

BIRMINGHAM.

LATE SERVICES FOR HOLIDAY TRAVELLERS—A TRAMWAY ROUTE DISCONTINUED.

In connection with the Easter excursions of the London, Midland and Scottish Railway, the Birmingham Corporation provided a service of late omnibuses on the Sunday from midnight to certain suburbs, and on the Monday from midnight and at intervals up to 4 a.m. to the suburbs. The fares were 4d. for the first ordinary 1½d. stages and 6d. for any distance beyond. A modified early morning service was available on all main routes from 5 a.m. to connect with excursions leaving New Street Station on Easter Monday. The service of tramcars on the Bolton Road route has been replaced by one-man operated single-deck omnibuses.

BRIGHTON.

ENTERPRISE OF THE TRAMWAYS MANAGEMENT.

Members of the Southern Railway Engineering Society were recently conducted over the works of the Brighton Corporation Tramways by Mr. W. Marsh, general manager and engineer, and Mr. W. Orchard, rolling stock superintendent. Replying to a vote of thanks Mr. Marsh said the undertaking had become probably the most completely equipped system in the south of England. The department had built all of its tramcars in use except for the motors. He thought that the fares would be progressively decreased until they had a penny fare over each section.

BRISTOL.

THE QUESTION OF PASSENGER SHELTERS.

In a letter to the Minister of Transport, Mr. J. H. Alpass, M.P., alleged that repeated representations had been made to the Bristol Tramways and Carriage Co. as to the lack of shelters. Replying to the Minister, the company state that Mr. Alpass must have been misinformed so far as any official representations from the City Council are concerned. Recently the company paid £300 to the Corporation for the erection of an artistic shelter on Durdham Down. Several waiting rooms had been provided elsewhere, but these had had to be closed owing to the impossibility of keeping such places in sanitary condition. The company had offered to erect a shelter at the Tramways Centre, but the Council declined the offer.

EDINBURGH.

TRAMWAYS EXHIBIT AT AN EXHIBITION.

At the recent Civic Health and Hygienic Exhibition by the Edinburgh Public Health Department, the Corporation Tramways made an attractive exhibit. This was arranged so as to explain some of the questions which a passenger might be expected to ask in relation to the tramways undertaking, and the exhibit was also designed to encourage the public to take more interest in their transport services. Exhibits included a large scale diagram of an electric tramcar in which rows of electric lamps were inserted, and these when lighted up by the manipulation of a controller placed alongside the car showed the path of the current during the application of power or brake. Red lamps were used to indicate the positive current flowing from the trolley wire, and blue lamps to show the negative current in the rails. Overhead automatic and street box point controllers were shown, and demonstrations were given of electric arc welding and magneto testing.

GLASGOW.

RECONDITIONED CARS—REPRESENTATION AT FOREIGN CONFERENCES—DEPRECIATION RATES—INQUIRY INTO A MISHAP.

The traffic statement of Glasgow Transport Department for the period from June 1 to April 12 shows an increase of £170,819 in the receipts of the tramways, omnibuses and the subway. On the tramways the increase was £31,445, which is regarded as showing the popularity of the new and reconditioned tramcars. The increase represents about 10¾ million more passengers. The Transport Committee is sending two members and the general manager to the congress of the International Union of Tramways, Light Railways and Public Omnibuses, at Warsaw, from June 29 to July 6. Other deputations are attending the International Roads Congress at Washington during the week October 6-10, and the congress of Superintendents of Municipal Depots and Cleansing Departments at Stuttgart on June 1-4. For the financial year beginning June 1 the Transport Committee has reduced the depreciation on the permanent way from £1,000 to £900 per car mile. The depreciation on the electrical equipment is also to be modified in view of the installation of new controllers and other equipment in the reconditioned cars. It is estimated that these reductions will enable revenue to balance expenditure and allow fares to remain as at present. The ½d. fare is regarded as safe for another year. Colonel E. P. Anderson, representing the Ministry of Transport, on April 22, held a private inquiry into the overturning of a Glasgow Corporation tramcar on April 12 at the junction of Dumbarton and Crow Roads. Over sixty persons were injured in the accident, two of them fatally. Colonel Anderson mentioned that the inquiry was of a technical nature and was not intended to supersede or to be a substitute for proceedings elsewhere.

HULL.

IMPROVED CARS AND SPEEDIER SERVICES.

Proposals made by Mr. E. S. Rayner, general manager of the Corporation Tramways, for alterations to several termini in order to secure more speedy services have been adopted by Hull City Council. The Corporation has also agreed to a recommendation to upholster the seats of ten tramcars as an experiment. These cars are also to be brought up-to-date on the lines of a sample car. Mr. Rayner also reported that from personal inquiries from the heads of the London County Council Tramways he found that they were definitely of opinion that the modernisation of the London cars had effected the great change in the financial position of the undertaking, despite the fact that omnibus competition had materially increased.

LEEDS.

NEW CARS AND THE UNEMPLOYMENT GRANT.

Leeds Tramways Committee has decided to proceed with the building of 100 new cars provided the necessary borrowing powers are obtained. Some time ago the Government refused to give an unemployment grant towards the construction of 150 new cars. Mr. J. Arnott, M.P., ex-chairman of the Committee, has been discussing with the Minister of Labour the question of a grant to enable Leeds to expedite the construction of the cars.

LIVERPOOL.

THE COMPETITION BETWEEN THE CORPORATION TRAMWAYS AND OMNIBUSES.—PASSES FOR OLD AGE PENSIONERS.

Liverpool Tramways and Electric Power and Lighting Committee has instructed the general manager to put into operation a scheme with a view to removing the competition between tramcars and omnibuses operated by the Tramways Department. The scheme includes the provision as required of omnibus services between outlying districts and suburban tramway termini, or other suitable traffic points near to these termini during the slack portions of the day. During the peak loading periods it is proposed to run omnibus services as at present, between the centre of the city and the suburbs, at revised rates of fares on the basis of approximately a penny per mile for the first two miles, then from 1¼ to 1½ miles per penny for the remainder of the journey, the stages to be arranged to terminate at suitable traffic points. The minimum fare on these omnibuses to be 2d. The inauguration is also proposed of a transfer system enabling passengers to travel by car to the tramway terminus, or a near traffic point, and then to transfer to an omnibus to complete the journey to the omnibus suburban terminus at the present through omnibus fare, thus making provision for a cheap through tramway fare, a higher fare for combined omnibus and tramcar journeys, and a luxury fare for the complete omnibus service when an alternative tramway service is available. The City Council has confirmed the proposal of the Tramways Committee that old-age pensioners of 70 years and over shall be carried free on the Corporation tramways and omnibuses for an experimental period of three months.

LONDON.

MORE LORRIES FOR REMOVING OBSTRUCTIONS—MR. J. K. BRUCE'S RETIREMENT—L.C.C. GRANT FOR "SAFETY FIRST" WORK—NEW TRACK.

The London County Council has decided to obtain four additional breakdown tenders from Karrier Motors, Ltd., for use in the Tramways Department. This decision was arrived at in consequence of the success which has attended the use of two of these special Karrier machines during the second half of last year for removing obstructions from tramway tracks. These tenders, which were illustrated and described in THE TRAMWAY AND RAILWAY WORLD of November 21 and December 12, 1929, combine the duties of carriers of tools and appliances, mobile cranes and tractors. In consequence of continued ill-health, Mr. J. K. Bruce is retiring from the general managership at the end of June. Particulars are given in another column of the pleasing manner in which the County Council has recognised his services, which have brought success to the tramways, both from the operative and financial aspects. An annual sum of 50 guineas is to be subscribed by the Council, as a tramway authority, to the funds of the London Safety First Council. The Highways Committee consider that the department derives a direct financial

Digitized by Google

benefit by a reduction in accidents in which tramcars are involved. The Council is also to make a grant of 12s. 6d., which approximates to a day's pay, to employees in the department who qualify for awards under the annual "Freedom from Accidents" competition organised by the London Safety First Council. During the three years from 1927 to 1929, 806 employees entered for the competition, 535 obtaining awards. In addition, four received the meritorious service medal and diploma and two guineas for stopping runaway horses. The Metropolitan Tramways Company proposes to construct a new link tramway near Tally Ho Corner, North Finchley, at a cost of £10,000. Croydon Tramways Committee has arranged for the construction of a double track at the cost of £3,500 in connection with the further widening of High Street. Barking Council is borrowing £21,125 for the reconstruction of the tramway track from the Bull Hotel to Loxford Bridge.

MANCHESTER.

HIGHER SPEEDS APPLIED FOR—WOODEN WHEELS.

Application has been made by the Corporation Transport Department to increase the speed of tramcars on certain city routes as well as on sections outside the city over which running powers are held by the Corporation. On April 24 Colonel Anderson, of the Ministry of Transport, inspected a number of routes on which it is proposed to increase the speed of the cars from 16 to 20 miles per hour, the maximum speed. The Tramways Committee has ordered a set of wooden wheels for a tramcar. The experiment is being made with the object of running the cars more quietly.

READING.

PENNY OMNIBUS FARES AND TRAMCAR WITHDRAWAL.

On April 1 Reading Corporation made important concessions on the tramway and omnibus fares. Chief among them is the introduction of more 1d. stages on the omnibus routes. Previously there were only ten such stages; there are now 45, and these have been arranged as conveniently as possible for the public. The introduction of the latter fares on the omnibuses has enabled the department to dispense with the tramcar service on the Bath Road section. By releasing cars on this section it has been possible to increase the tramway services on other routes.

ROTHERHAM.

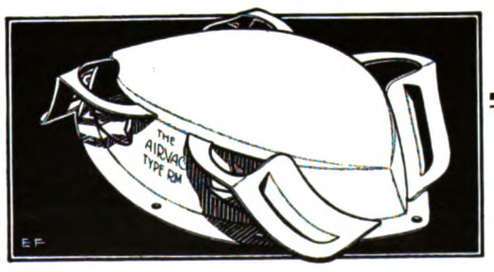
DEFENCE OF THE CORPORATION TRANSPORT SYSTEM.

The general manager of Rotherham Corporation Transport, Mr. T. P. Sykes, made a spirited reply to critics of the department in an address which he gave at the April meeting of the Rotherham and District Chamber of Trade. In a vigorous defence of the transport system, he stated that during the year ended March 31 last the vehicles were in service for 20½ hours a day. The tramcars ran 723,913 miles, and the lost mileage was 638 miles, giving a percentage of .86. On the railless they ran 532,721, losing 631 miles, with a percentage of .118; on the petrol omnibuses 1,164,774, with 598 miles lost, and a percentage of .051. The London General Omnibus Company prided themselves on their percentage of .19 for lost mileage. This was three times as high as Rotherham's omnibuses, twice as high as the tramcars, and considerably higher than their railless. These figures were a slight improvement on those of the previous year.

WIGAN.

PASSES FOR COUNCILLORS.

The Council has decided that, owing to the increased demand upon the time and services of members of the Council, a free pass shall be granted to the members to travel on the Corporation omnibuses and tramcars.



Airvac prices are competitive, yet you cannot buy, at any price, a ventilator as efficient, scientific, or of such sturdy construction as the Airvac.

AIRVAC VENTILATORS
Honeypot Works, DARLINGTON

PERSONAL.

Alderman Pilling has been appointed representative of Colne Corporation on the Mid-Lancashire Electricity Board.

Mr. A. W. Riley has been appointed municipal sales representative of the Sunbeam Motor Car Co., on the public passenger and commercial vehicle side.

Mr. R. H. Wilkinson, general manager of Bradford Corporation Tramways, has been on holiday to Madeira in order to complete his recovery from recent illness.

Mr. W. B. Woodhouse, engineer and manager of the Yorkshire Electric Power Co., has been appointed a director to fill the vacancy created by the death of Mr. A. G. Lupton.

Mr. H. B. Sharp, rolling stock superintendent of the Rotherham Corporation Tramways, has been appointed transport manager of the Morecambe and Heysham Tramways.

Mr. W. Shore, on retiring from Manchester Corporation Tramways after forty years' service as a motorman and wagon driver, has been presented with a gold watch and chain.

Mr. George Boots, of Newcastle, has been appointed stores superintendent by the Stores and Transport Committee of Portsmouth Corporation. There were 175 applicants.

Mr. J. Wild, whose appointment as manager of the Morecambe Corporation Tramways undertaking was recently announced, has not accepted the position, and will remain at Todmorden.

Mr. Percy Wardle has been appointed engineer and manager to Cannock Electric Supply Department. Mr. Wardle has been mains engineer to Walsall Corporation Electric Supply Department for the past ten years.

Mr. C. W. F. Cozens has been appointed acting manager, Tees-side Railless Traction Board, to succeed Mr. J. B. Parker, who has been appointed tramways electrical engineer to the London County Council Tramways.

Mr. D. Hays, formerly manager of the Scottish General Omnibus Company, has been appointed to control the management of the group of transport undertakings owned by the Midland Counties Electric Supply Co., Ltd.

Mr. T. B. Keep has been appointed director and general manager of Commer Cars, Ltd., commercial vehicle manufacturers, Luton. Mr. Keep was originally with Dennis Bros., Ltd., and for some years was a director of Rootes, Ltd.

Mr. D. C. McLagan, D.S.O., O.B.E., lately secretary of the Accumulator Makers' Association, has been appointed secretary of the Society of Motor Manufacturers and Traders. The vacancy was caused by the resignation of Mr. R. H. S. Spicer.

Mr. F. A. Orchard has joined the staff of Mr. D. Maxwell Buist, engineer for the Central Electricity Board in the North-East England area. During the past twelve years Mr. Orchard was with Messrs. Merz & McLellan, consulting engineers, Newcastle-on-Tyne.

Mr. Raymond Best, assistant engineer, Birmingham Corporation Tramways and Omnibuses Department, has been appointed maintenance engineer with the British Petroleum Co., Ltd. While at Birmingham, Mr. Best acted as hon. secretary of the local graduates' section of the Institution of Automobile Engineers.

Mr. P. J. Pringle, chief engineer and manager to the Electric Supply Co., of Victoria, and Mrs. Pringle, are travelling to London, via Spain and France, and expect to arrive about the middle of May. Mr. Pringle intends to spend some ten weeks in this country. His address in England will be care of the Electric Supply Co., Royal Liver Buildings, Liverpool.

Mr. Clement Jackson, general manager of the Plymouth Corporation Transport, has been elected a member of the Council of the Municipal Tramways and Transport Association in place of Mr. H. P. Stokes who recently resigned the position of general manager of the Plymouth undertaking to become general manager of the United Automobile Services, Ltd., and its allied companies.

Major E. G. Beaumont, son of the late Mr. Worby Beaumont, has resumed practice at 20, Essex Street, Strand, W.C.2, as a consulting engineer, with particular reference to automobile engineering and road transport. Prior to 1914, Major Beaumont was associated with his father, the late Mr. Worby Beaumont, in those departments. Mr. Leslie Burt, who has been engaged in the same practice for many years, will collaborate with Major Beaumont.

Mr. Charles H. Stafford, the newly-appointed general manager of Burnley Corporation Tramways and Omnibuses, was the recipient of a handsome present, consisting of a gold wrist watch and silver cigarette case, suitably inscribed, subscribed for by his former colleagues at Reading, on the occasion of his leaving to take up his appointment at Burnley. The presentation was made by Mr. J. M. Calder, general manager and engineer, Reading Corporation Tramways and Motors, in the presence of a large gathering of the staff and employees of the department and representatives from other departments of the Corporation.

Digitized by Google

Mr. G. Cardwell, general manager of the North-Western Road Car Co. since that undertaking was formed by the British Automobile Traction Co., has received an appointment with Thomas Tilling, Ltd., London. He is succeeded by Mr. J. W. Womar, his chief assistant. Other positions which Mr. Cardwell has filled include those of general manager of Hartlepool Electric Tramways Co., Devonport and District Tramways Co, and Aldershot and District Traction Co.

Mr. William Marsh, on May 1, completed 25 years' service as general manager and engineer of Brighton Corporation Tramways. He went to Brighton from Glasgow Corporation Tramways in 1900 as assistant engineer to the late Mr. T. B. Holliday, who was manager of the Brighton Tramways from 1900 to 1905, when he was appointed manager of the Hastings Tramways Company. In 1904, Mr. Marsh was appointed assistant manager, and in the following year became manager. Brighton Tramways undertaking was then run at a considerable loss, but Mr. Marsh, after a hard struggle, succeeded in putting the undertaking upon a sound foundation. Difficult times were encountered, but the Brighton system has made great strides in the past ten years, and has become a profitable municipal enterprise. The rolling stock during the past few years has been greatly improved, and the Corporation now has 75 cars. The track as well as the rolling stock has been modernised, and in all respects the system is a credit to the manager. The *Sussex Daily News*, in the course of a congratulatory article, says that Mr. Marsh's ambition is to see a revival of the general 1d. fare, and he is convinced that this will be possible within the next four years.

We regret to record the death of **Mr. Andrew Wilson Tait,** which occurred on April 21, at the age of 54 years. Mr. Tait was chairman of the Metropolitan Electric Supply Company, Ltd., the Delhi Electric Tramways and Lighting Co., Ltd., and other companies.

Mr. D. Sinclair, chairman of the British Insulated Cables, Ltd., and a director of various important cable construction and electric supply companies, died on May 6 at his residence at Weybridge at the age of 78. Mr. Sinclair had been associated with the British Insulated Cable Co. for a long period, first as general manager and then as managing director, and latterly as chairman.

We regret to record the death of **Alderman J. E. Pendleton,** for over 28 years a member of the Nottingham City Council and twice Mayor of the city. He had been ill for over a year. He was at one time organising secretary for the Nottingham area of the Tramway and Electrical Workers' Union, which subsequently became the Transport and General Workers' Union. For many years he was a member of the Tramways Committee.

CHARING CROSS BRIDGE SCHEME.

L.C.C. Proposal Rejected.

The Private Bill Committee of the House of Commons, which had been considering the London County Council (Charing Cross Bridge) Bill, rejected the Bill on May 6. In a printed statement submitted on behalf of the L.C.C., it was stated that the Council were convinced that there was no other practicable site for the new station than the Lion Brewery site which had been adopted in the scheme of the Bill.

Sir Henry Cautley, the chairman, in announcing the decision of the Committee, said that they remained of opinion that putting the station at the bridge-head would stop the development of Lambeth and was a blot that they could not accept.

Photographs of the model showing clearly the proposed location of the station and other details of other parts of the station were given in our issue of April 17.

Tramway Authorities and London Traffic.—At the suggestion of West Ham Corporation representatives of four authorities —West Ham, East Ham, Walthamstow and Ilford—will meet to discuss generally the statement made by the Minister of Transport on the question of the reorganisation of London traffic, with a view to endeavouring to arrive at some common ground as to the action which should be taken in connection therewith by the tramway-owning authorities in the Greater London area.

Wooden Wheels for Tramcars.—A demonstration took place at Smethwick on April 1, of a wooden wheel for tramcars, which is claimed to be fifty per cent. stronger than the average wheel. Mr. Murray Griffiths, a director of the London Underground Group, said that they were quite satisfied that there was every chance of the wooden wheel being quite satisfactory for railways.

COMMERCIAL AND TECHNICAL PHOTOGRAPHERS

Specialists to the Motor, Tramway & Railway Industries.

EXPERT OPERATORS ALWAYS AVAILABLE.
CONTRACTS UNDERTAKEN IN ALL PARTS OF THE COUNTRY.

Photographic printing and enlarging. Post Cards, Calendars, etc.
Prices on application.

AIR PHOTOS OF FACTORIES, POWER PLANTS, TRAFFIC, etc.
PICTORIAL AIR VIEWS OF TOWNS IN STOCK FOR GUIDE BOOKS.

AEROFILMS LTD. *Tel:* COLINDALE 6183, 6184.
COLINDALE AVENUE, HENDON, LONDON, N.W 9

THE
Manchester Armature Repair Co. Ltd.
ELECTRICAL ENGINEERS
FORD LANE, PENDLETON, MANCHESTER

Contractors to Leading Tramway Authorities for
ARMATURE COILS
FIELD COILS
COMMUTATORS
For All Types of Tramway Motors

Telephone—Pendleton 151 *Telegrams*—"Rewinding Manchester"

ESTABLISHED 1856

Contractors for more than Half a Century to the principal British, Indian, Colonial and Government Railways &c. &c.

TEARNE & SONS LTD.
BIRMINGHAM
TRANSFERS
For Tramcars, Railway Carriages, &c.
ARMS - MONOGRAMS - LETTERING
Every Description of Inside and Outside Ornamentation, Notices, etc.
Telephone—Northern 1637 *Telegrams*—"Tearne, Birmingham"

Automatic and Curb Point Controllers
Tramway & Traffic Signals
Porcelain Insulators and Fittings

THE
FOREST CITY ELECTRIC CO., LTD.,
4, Longford Road, Stretford,
MANCHESTER.

Digitized by Google

Leather Upholstery

Unsurpassed for

Public Service Vehicles

---

1 Economy & Service.

Low cost and capacity to stand hard wear.

2 Clean & Sanitary.

There is nothing to equal it.

3 Appearance & Comfort.

Refined and cheerful.

JOHN T. HART & SONS,

Grange Road,

BERMONDSEY,

LONDON, S.E.

There is no better leather obtainable.

Write for patterns and quotations and all particulars.

CONTRACTS AND ORDERS.

Hull Tramways Committee has accepted the tender of Siemens Bros., Ltd., for the supply of feeder cable at £5,279.

The India Stores Department has ordered 10,000 telegraph insulators from the Equipment & Engineering Co., Ltd.

Bradford Tramways Committee has placed an order for twelve double-deck trolley omnibuses with the English Electric Co., Ltd.

Manchester Transport Committee has given an order for two electro-magnetic crack detectors to the Equipment & Engineering Co., Ltd.

Glasgow Transport Committee has accepted the tender of John Baker & Bessemer, Ltd., of Rotherham, for axles, with wheels and tyres.

Torquay Corporation has placed a contract with the British Thomson Houston Co. for a 7,500 K.W. set with condensing and auxiliary plant, at £26,595.

Coventry Corporation has confirmed the recommendation of the Transport Committee for the reconstruction and doubling of the track in the Burges, one of the principal thoroughfares.

J. W. Courtenay, Ltd., of Amberley House, Norfolk Street, London, W.C.2, have been appointed sole advertising contractors to the Burton-on-Trent Corporation Transport Department.

Bradford Tramways Committee has accepted the tender of Brown Bayley's Steel Works, Ltd., for the supply of steel axles, and of Thomas Bolton & Sons, Ltd., for 20 drums of copper trolley wire.

Glasgow Transport Committee has placed contracts for copper trolley wire with Frederick Smith & Co., Ltd., of Manchester, and T. Bolton & Sons.

Leeds Tramways Committee has accepted the tender of Brightside Foundry Co., Ltd., for the supply of hot-water apparatus for washing tramcars at Swinegate depot, and of W. McFarlane & Co. for the erection of two tramway shelters at Middleton.

The J. G. Brill Co. have an order from the United Electric Railways, of Baltimore, for 100 cars, including 200 type 177E bogies. From the same company an additional order has been received for 100 177E bogies. The Lehigh Valley Transit Co. has ordered 10 cars mounted on type 177E bogie trucks.

East Ham Corporation recently accepted an estimate for four new tramcars by the Brush Electrical Engineering Co. to augment the Barking Road service. As the London County Council has since agreed for the time being to provide the additional cars needed, the Corporation has decided not to make the purchase.

Motors for Glasgow Cars.—General Electric Co., Ltd., Magnet House, Kingsway, London, W.C.2, has an order from Glasgow Corporation Tramways for electrical equipments required for tramcar modernisation. The order comprises 450 motors of 60 H.P. each on the one hour rating, 600 volts, together with resistances and circuit breakers.

Belfast Tramways Committee, on April 24, considered tenders for the building of fifty new tramcar bodies. Two Belfast firms submitted tenders for the construction of ten bodies, and the tender of the Service Motor Works, Ltd., was accepted. The bodies for the other forty cars will be built by the Brush Electrical Engineering Co., Ltd., of Loughborough.

Christchurch (N.Z.) City Council, who invited tenders some time ago for the supply of trolley omnibuses, has placed a contract with Messrs. Cory-Wright and Salmon for "English Electric" chassis, at a cost of £1,459 each. The chassis will be of the six-wheel type, equipped with a 70 H.P. motor, and will carry a body seating 40 passengers. The total weight loaded will be 10 tons 8 cwt., the weight distribution being about 2½ tons on the front axle, 3½ on the middle one, and 4 on the rear one.

Airvac Ventilators have a contract from the South Indian Railway for 612 Airvacs, Type "R," 68 Airvacs, Type "RM," with 42 interior fittings. The carriages for which these are being supplied are being built by Metropolitan Cammell Carriage Wagon and Finance Co., Ltd., and are for service in connection with the Madras electrification scheme. Orders have been received from the Canadian Pacific Railway for 250 Airvacs, Type "R," and for Type "R" Airvacs for the Pullman Car Co., Ltd.

Liverpool Tramways Electric Power and Lighting Committee has recommended the acceptance of the following tenders:—The English Electric Co., Ltd., supply of 12 1,000 KVA. step-down transformers at £2,402 each; The Cargo Fleet Iron Co., 1,600 tons Sandberg silicon sorbitically-treated tramway rails at £11 5s. per ton; Société Au Des Usines Acieries Allard, 60 tons of fish plates at £14 5s. per ton and 8 tons of fish bolts at £11 12s. per ton; Hadfields, Ltd., the Titan Trackwork Co., Ltd., Edgar Allen & Co., Ltd., tramway junctions; Premier Electric Welding (Mersey), Ltd., electric welding of 375 tramway rail joints and retreading of rail surfaces.

Digitized by Google

TRAFFIC RETURNS.

Tramway and Omnibus Undertakings in the United Kingdom.

NAME OF COMPANY OR CORPORATION	1929. WEEKS ENDING					1930. WEEKS ENDING					AGGREGATE.		
	April 6	April 13	April 20	April 27	May 4	April 5	April 12	April 19	April 26	May 3	Wks.	1930	Increase or Decrease
	£	£	£	£	£	£	£	£	£	£		£	£
Aberdeen Corporation	4,378	4,640	4,249	4,220	4,125	4,458	4,414	4,848	4,808	4,766	48½	234,258	+ 18,548
Ashton-under-Lyne Corporation... ...	1,739	1,569	1,617	1,667	1,700	1,574	1,557	1,785	1,724	1,576	5	8,216	— 76
Ayr Corporation	591	456	443	547	458	502	422	453	558	499	50	28,578	+ 1,344
Barrow Corporation	940	811	799	829	846	871	887	981	1,021	909	5	4,672	+ 443
Belfast City	6,927	11,511	11,478	11,844	12,031	7,606	12,885	12,729	13,230	12,687	44	59,137	+ 5,313
Birkenhead Corporation	5,192	4,481	4,538	4,531	4,676	4,881	4,822	4,870	5,279	5,059	5	24,103	+ 783
Birmingham Corporation	41,619	38,622	39,819	40,084	40,183	42,287	42,238	42,155	41,319	42,452	5	216,445	+ 20,276
Blackburn Corporation	2,809	1,882	1,878	2,809	1,909	2,101	2,100	2,019	2,746	2,063	4⅔	9,578	+ 1,319
Bradford Corporation	15,678	14,416	14,210	14,580	14,422	14,383	14,739	13,384	15,513	13,790	5	67,494	— 4,427
Brighton Corporation	2,439	2,135	2,215	2,155	2,120	2,255	2,259	2,525	2,774	2,456	4⅔	11,967	+ 903
Burnley Corporation	3,700	3,445	3,569	3,524	3,800	3,714	2,520	3,917	3,473	3,468	...	...	...
Burton-on-Trent Corporation	794	752	769	809	803	918	863	869	890	842	5	4,263	+ 2,208
Bury Corporation	2,501	2,431	2,515	2,439	2,616	2,503	2,799	3,167	2,891	2,968	4⅔	14,328	+ 1,826
Cardiff Corporation	8,330	7,068	7,265	7,233	7,431	7,584	7,777	7,739	8,734	7,572	4⅔	37,736	+ 2,732
Chatham and District	1,236	1,031	1,041	1,032	1,048	1,114	1,064	1,094	1,204	1,170	17	18,429	+ 1,071
Chesterfield Corporation	1,946	1,865	1,835	1,822	1,903	1,965	1,912	2,241	2,004	1,969	5	9,685	+ 720
Colchester Corporation	506	526	494	502	506	552	586	709	580	565	6	3,156	+ 415
Colne Corporation	662	665	673	672	693	660	626	928	656	682	5	3,789	+ 117
Coventry Corporation	4,114	3,439	3,563	3,579	3,613	3,874	3,904	3,935	4,296	3,712	5	19,723	+ 1,415
Darlington Corporation	1,013	910	949	941	954	1,057	1,062	1,157	1,132	999	4⅔	5,162	+ 696
Derby Corporation	3,191	2,900	2,974	2,995	2,961	3,431	3,326	3,398	3,572	3,135	5	16,138	+ 1,389
Dover Corporation	365	344	339	328	339	293	359	386	433	366	5	1,838	+ 121
Dundee City	3,277	3,209	3 255	3,238	3,410	3,374	3,315	3,470	3,440	3,441	50⅔	174,499	+ 6,107
East Ham Corporation	2,253	2,246	2,220	2,279	2,321	2,321	2,325	2,200	2,310	2,315	4⅔	10,997	+ 449
Edinburgh Corporation	17,502	15,910	15,867	16,315	16,760	17,092	16,889	17,515	17,581	17,652	50⅓	896,169	+ 48,562
Exeter Corporation	563	850	806	856	846	573	825	811	870	825	5	3,560	— 239
Glasgow Corporation	47,766	49,035	...	48,363	48,822	52,129	52,856	...	50,970	53,666	48	2,445,599	+ 184,189
Gloucester Corporation	246	515	479	489	479	192	694	683	779	665	4⅔	3,013	+ 805
Grimsby Corporation	1,017	1,296	1,272	1,290	1,246	1,181	1,474	1,584	1,585	1,461	5	7,285	+ 1,170
Halifax Corporation	4,213	4,122	4,326	4,300	4,420	4,967	4,959	6,107	4,843	4,967	5⅓	26,506	+ 3,261
Huddersfield Corporation	7,716	5,961	6,065	6,303	6,141	6,292	6,118	6,966	7,657	6,021	5	32,056	— 132
Hull Corporation	5,489	7,123	7,210	7,268	7,109	5,769	7,558	7,389	7,284	7,146	5	35,149	+ 949
Ilford Corporation...	1,464	1,453	1,469	1,467	1,496	1,520	1,515	1,442	1,497	1,581	4⅔	7,213	+ 300
Ipswich Corporation Trolley Buses ...	922	1,186	1,161	1,229	1,193	963	1,240	1,310	1,385	1,334	4⅔	6,230	+ 534
Isle of Thanet	976	505	447	494	456	402	405	414	909	554	17⅓	6,923	— 45
Kilmarnock Corporation	447	442	433	446	446	482	502	480	496	470	50⅔	24,163	+ 1,833
Leeds Corporation...	19,883	18,382	18,968	19,128	19,234	19,819	19,655	18,888	21,091	19,363	4⅔	94,183	+ 4,794
Leicester Corporation	8,309	7,998	8,134	8,243	8,147	8,411	8,443	8,221	8,452	8,234	5	39,837	+ 1,631
Lincoln Corporation Buses	951	849	861	923	...	783	867	955	1,068	...	4	3,674	+ 89
Liverpool Corporation	30,012	28,445	29,068	29,199	29,258	30,253	29,927	28,820	30,406	30,202	4⅓	142,650	+ 4,462
London County Council	79,089	81,312	81,292	82,548	82,931	83,670	83,113	83,190	77,189	83,470	4⅔	353,332	+ 18
Luton Corporation	202	384	374	378	391	113	422	427	528	458	4⅔	1,948	+ 219
Maidstone Corporation	1,092	770	743	780	739	1,453	892	818	897	882	4⅔	4,474	+ 318
Manchester Corporation	29,959	38,743	39,673	39,784	40,136	31,241	40,468	39,032	40,919	40,791	5	192,452	+ 4,153
Middlesbrough Corporation	1,585	1,517	1,611	1,613	1,721	1,646	1,640	1,781	1,616	1,680	5⅓	8,584	+ 46
Newcastle-on-Tyne Corporation ...	8,668	10,528	10,831	11,051	11,109	8,876	11,028	11,108	11,771	10,984	4⅔	53,767	+ 1,503
Newport Corporation	1,811	2,239	2,305	2,302	2,438	1,982	2,518	2,463	2,695	2,390	5	12,108	+ 1,013
Northampton Corporation	1,330	1,649	1,668	1,719	1,666	989	1,732	1,725	1,987	1,831	4⅓	8,264	+ 231
Nottingham Corporation	14,330	8,995	9,299	9,056	9,095	14,390	10,420	10,126	9,932	10,232	5⅔	55,102	+ 4,324
Oldham Corporation	5,670	5,362	5,640	5,580	5,701	5,501	5,503	5,649	5,833	5,440	6	32,024	— 1,651
Plymouth Corporation	4,392	5,475	5,463	5,507	5,521	4,933	6,098	5,919	6,091	6,094	4⅔	29,139	+ 2,776
Portsmouth Corporation	6,511	5,375	5,629	5,410	5,506	6,677	6,420	6,470	7,786	6,779	5	32,453	+ 4,894
Preston Corporation	991	2,082	2,092	2,160	2,137	614	2,130	2,133	2,451	2,077	4⅔	9,409	— 56
Rawtenstall Corporation	1,351	1,312	1,327	1,367	1,417	1,408	1,352	1,453	1,387	1,381	4⅔	6,813	+ 39
Reading Corporation	964	2,282	2,246	2,324	2,286	972	2,355	2,461	2,472	2,383	5	10,646	+ 539
Rochdale Corporation	4,576	4,266	4,352	4,401	4,508	4,301	4,266	4,761	4,654	4,211	...	21,237	— 354
Rotherham Corporation	2,799	2,407	2,467	2,614	2,640	2,789	2,736	3,105	3,147	2,646	5	14,423	+ 1,496
Salford Corporation	11,348	10,562	10,967	10,781	11,012	11,409	11,321	11,037	11,759	11,445	4⅔	55,305	+ 1,616
Sheffield Corporation	21,343	19,763	19,956	20,577	20,329	20,989	20,817	20,109	22,210	20,630	4⅔	104,755	+ 2,786
Southampton Corporation	1,976	3,782	3,739	3,744	3,825	1,196	4,171	4,126	4,584	4,250	5	18,331	+ 1,808
Southend-on-Sea Corporation	2,028	1,922	1,981	1,945	1,940	1,934	2,000	2,766	2,217	2,126	5⅓	11,596	+ 504
Southport Corporation	1,272	1,506	1,502	1,516	1,504	1,225	1,514	1,727	1,972	1,599	4⅔	8,037	+ 737
St. Helens Corporation	1,848	2,015	1,738	1,818	1,801	1,790	2,310	1,987	2,380	1,956	4¼	8,633	+ 1,261
Sunderland Corporation	2,881	2,151	2,171	2,174	2,247	2,647	2,819	3,171	2,738	2,701	5	14,557	+ 2,933
Swindon Corporation	167	597	584	623	590	236	925	954	1,123	974	4⅔	4,213	+ 1,486
Wallasey Corporation	3,620	2,910	3,060	2,996	3,073	3,115	3,064	3,245	3,805	3,361	4⅔	15,864	+ 1,462
Walsall Corporation	3,913	3,142	3,248	3,264	3,293	3,135	3,545	3,680	4,051	3,434	5	17,896	+ 1,036
Walthamstow Corporation	2,425	2,262	2,321	2,326	2,368	1,843	2,434	2,319	2,487	2,516	4¼	11,598	— 103
Warrington Corporation	1,367	1,334	1,272	1,282	1,335	1,416	1,429	1,453	1,361	1,350	5	7,009	+ 419
West Ham Corporation	6,046	5,763	5,789	5,903	5,934	6,238	6,151	6,310	6,096	6,226	4⅔	27,488	+ 417
Wolverhampton Corporation	6,731	5,600	5,763	5,798	5,879	5,167	6,026	6,007	6,844	5,858	5	29,903	+ 131
York Corporation	1,799	1,240	1,318	1,318	1,390	1,868	1,492	1,719	1,440	1,518	6	8,040	+ 875

Underground Electric Railways Company of London, Limited.

NAME OF COMPANY	1929. WEEKS ENDING					1930. WEEKS ENDING					AGGREGATE.		
	April 6	April 13	April 20	April 27	May 4	April 5	April 12	April 19	April 26	May 3	Wks.	1930	Increase or Decrease
	£	£	£	£	£	£	£	£	£	£		£	£
Underground Rlys. (Common Fund Co.)	294,100	281,300	290,400	295,600	290,400	306,700	308,000	280,400	312,100	320,300	18	5,260,400	+ 408,700
London and Suburban District	43,700	39,900	41,400	41,800	41,600	44,100	44,100	41,300	46,500	46,100	18	761,700	+ 74,000

Colonial and Foreign Tramway Traffic Returns.

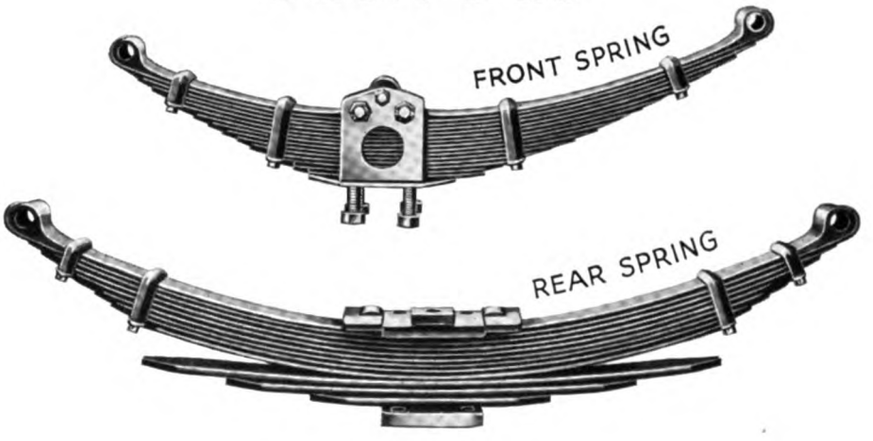
NAME OF COMPANY OR CORPORATION	1929 WEEKS ENDING					1930. WEEKS ENDING					AGGREGATE.		
	April 6	April 13	April 20	April 27	May 4	April 5	April 12	April 19	April 26	May 3	Wks.	1930	Increase or Decrease
	£	£	£	£	£	£	£	£	£	£		£	£
Anglo-Argentine	94,073	92,723	91,166	90,815	92,214	89,622	89,512	79,626	81,014	89,590	18	1,516,867	— 76,347
Buenos Aires Lacroze	13,121	13 483	12,995	12,128	13,055	12,498	12,550	12,113	11,349	12,222	44	517,439	— 41,175
Calcutta ... ... *Rupees*	122,671	127,296	128,051	124,792	125,873	110,619	115,827	109,950	105,093	108,822	17⅓	2,106,407	— 192,491
Madras (2 weeks) ... ... *Rupees*	...	44,210	...	40,038	...	...	46,543	...	43,344	...	16	371,903	+ 26,653

	1928.		1929.				1929.		1930.				AGGREGATE.		
	Nov.	Dec.	Jan.	Feb.	Mar.	April	Nov.	Dec.	Jan.	Feb.	Mar.	April	Mths.	1929–30	Increase or Decrease
	£	£	£	£	£	£	£	£	£	£	£	£		£	£
Brazilian Trac. $	3,698,213	3,673,543	3,892,833	3,755,709	3,928,550	4,012,145	4,145,850	3,984,311	3,862,089	3,798,698	4,017,036	...	3	11,707,823	+ 130,731
British Columbia $	1,192,080	1,228,405	1,256,252	1,192,871	1,243,592	...	1,270,922	1,255,522	1,354,314	1,246,551	1,258,375	...	9	11,110,713	+ 567,360
Burma ... Rs.	66,905	62,582	64,372	63,808	68,993	64,744	62,191	63,485	62,533	63,098	72,758	...	8	511,726	— 23,007
Cape Town ...	...	32,709	31,777	28,274	30,121	29,244	...	30,332	31,036	27,479	30,087	27,500	...	...	...
Carthagena & H. ...	1,130	676	732	972	853	1,063	1,350	1,314	1,351	1,286	1,003	905	4	4,545	+ 925
Durban	22,498	26,123	23,916	21,848	24,442	25,603	23,214	25,452	24,577	21,321	23,662	...	8	190,536	+ 1,460
East India ...	3,803	3,670	3,562	3,055	3,892	3,798	3,905	3,721	3,553	3,127	3,863	3,601	9	34,126	+ 571
Kalgoorlie... ...	1,721	1,900	1,531	1,433	1,682	1,673	1,643	1,801	1,454	1,437	...	...	2	2,981	— 73
Para	14,810	14,360	14,028	14,007	14,971	15,060	15,542	14,487	14,556	13,628	14,976	...	4	57,647	+ 281
Port Elizabeth ...	...	9,830	9,293	7,478	7,857	7,877	...	9,115	9,016	7,110	8,127	7,521	...	...	...
Rangoon ... Rs.	110,770	130,110	116,835	114,300	121,246	120,855	137,703	138,400	155,080	140,130	164,600	148,215	4	608,025	+ 134,789
Shanghai ... $	327,363	321,970	319,220	294,708	339,785	336,624	360,247	345,415	363,400	322,473	377,849	308,840	4	1,372,562	+ 82,225
Singapore ... $	107,000	111,000	115,000	117,000	133,000	131,000	126,000	129,000	139,000	128,000	143,000	137,000	7	935,000	+ 108,000
Winnipeg ... $	553,186	586,264	607,966	570,895	572,492	536,033	597,391	641,362	628,979	567,569	571,157	...	3	1,767,705	+ 16,352

Digitized by Google

JONAS WOODHEAD & SONS LTD
LEEDS.

WOODHEAD'S PATENT
DIVIDED BACK PLATE
AND
ROLLING BEARING
AUXILIARY SPRINGS
ARRANGED FOR
A 54 SEATER DOUBLE
DECK BUS



LAMINATED SPRING EXPERTS

TELEPHONES
20814
20815
LEEDS

TRADE MARK

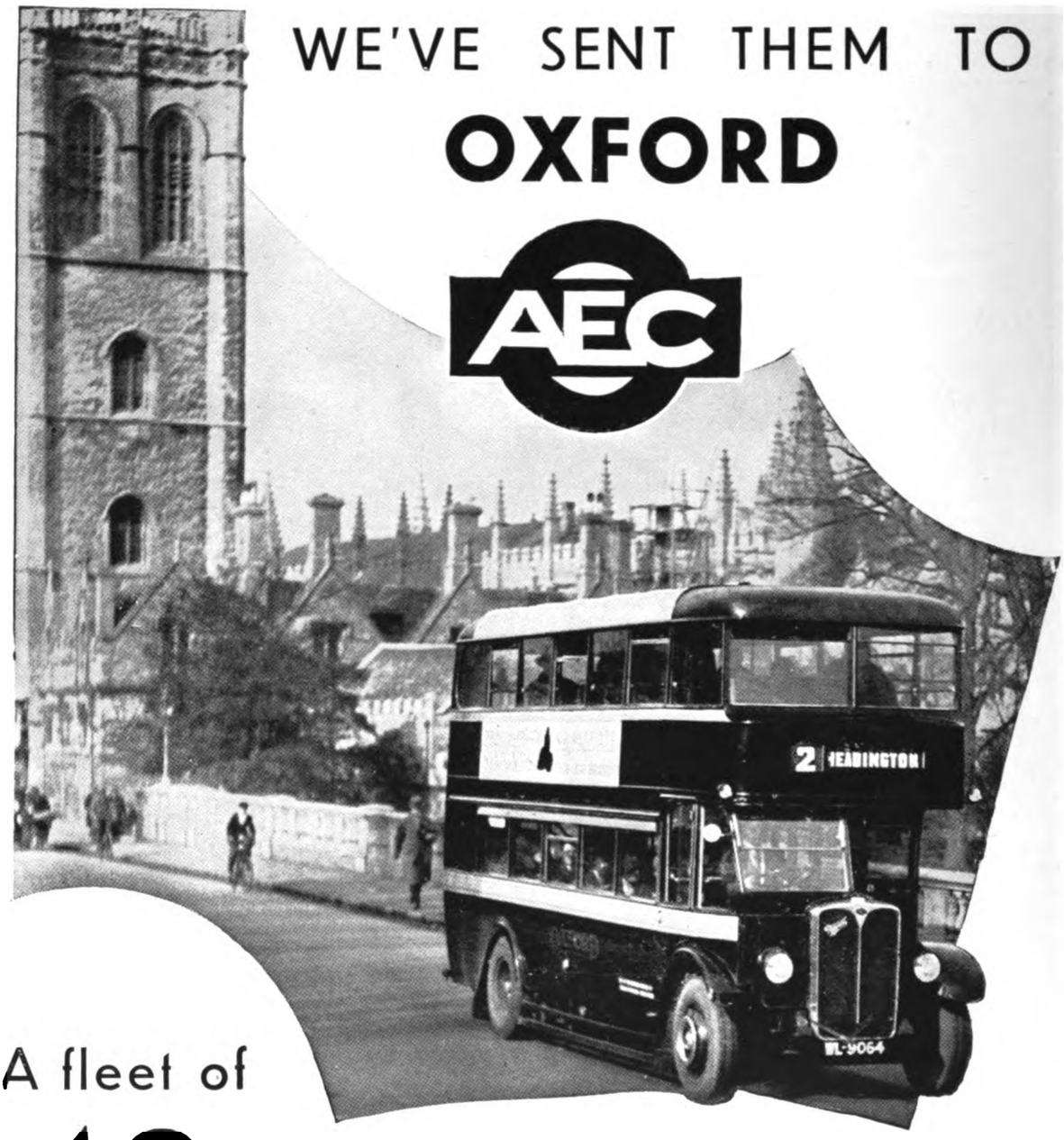
TELEGRAMS
FORGE
LEEDS

Digitized by Google

WE'VE SENT THEM TO

OXFORD

AEC



A fleet of

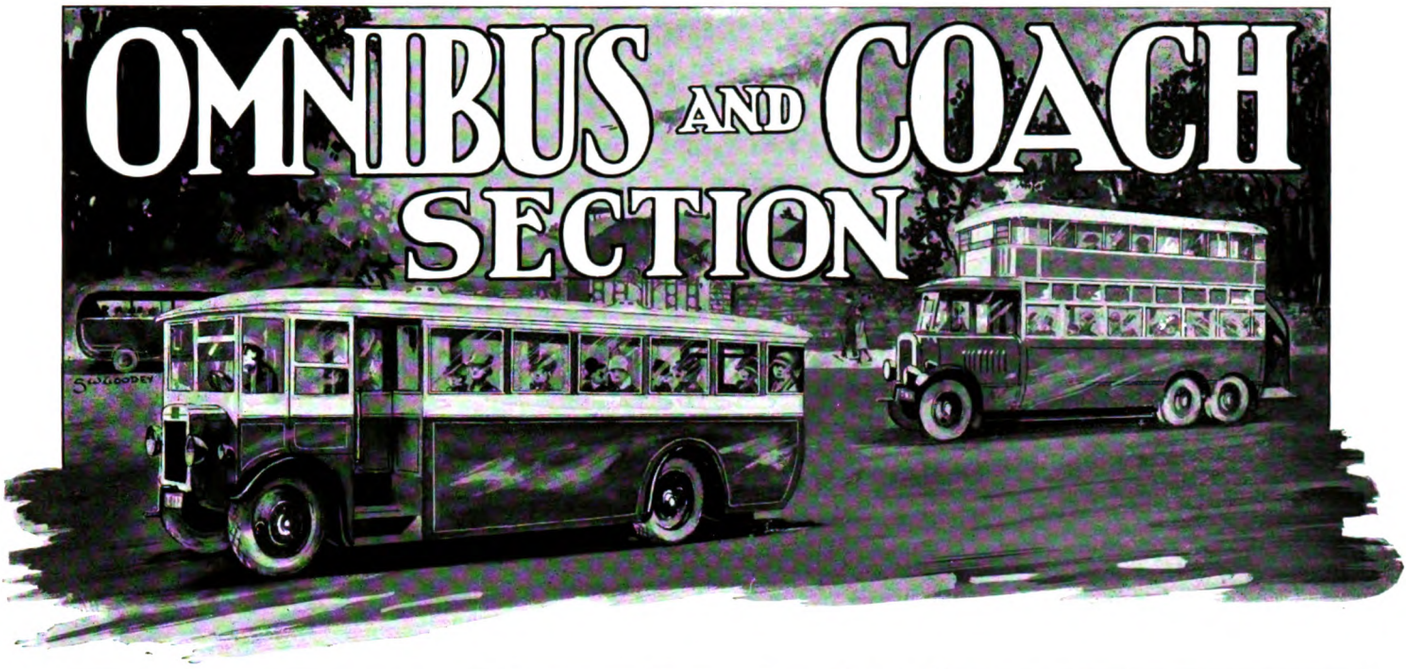
18 'REGENTS' are operating for the City of Oxford Motor Services Ltd.

The Associated Equipment Co. Ltd. Southall Middlesex

BUILDERS OF LONDON'S BUSES

542

Digitized by Google



OMNIBUS AND COACH SECTION—TWENTY-FIFTH YEAR OF PUBLICATION.

FITNESS OF DRIVERS.

The alarming increase in the number of road accidents, in spite of the intensive work of the Safety First Association and kindred societies, again focuses attention upon that all-important factor in the operation of public service vehicles, the fitness of the driver. The ease with which driving licences can be obtained by the unfit has frequently been referred to in these pages, but with the higher permissible speed and the increasing density of road traffic, a radical alteration in the present system is imperative. While it is almost impossible to prevent careless and irresponsible drivers of private cars being a menace to other road users, much can be done to ensure that the drivers of public vehicles are not only physically fit, but are in possession of the mental qualifications which are essential for the safe working of the services. Owing to the remarkable improvements which have been incorporated in the latest types of passenger chassis, both in regard to the driving unit and the power-assisted braking systems, mechanical operations entail much less fatigue, even on the largest type of omnibus or coach, than was the case only a short time ago, but however efficient the vehicle may be the fact remains that the safety of the passengers is in the hands of the driver. That this statement is fully realised by some of the larger operators is shown by the careful selection and training to which their men are subjected. Notably is this so in the case of the London General Omnibus Company. Unfortunately, however, judging by the unnecessary risks often taken by other omnibus and coach drivers, their heavy responsibility is not always seriously regarded, and preventable accidents have happened. The lack of sufficient road space, or an unforeseen occurrence, frequently call for the utmost skill and physical energy, and it is in these circumstances that the fitness of the driver may prevent a serious accident. A further move in the right direction is being taken by the Manchester Watch Committee, which has recommended that all omnibus drivers should undergo medical examination, with the possible extension of the test to the drivers of all licensed vehicles. The travelling public have a right to expect that every reasonable precaution has been taken to ensure its safety, and the renewed and extended confidence of the travellers will amply repay the operators of public service vehicles for the cost and trouble taken to secure this result.

THE DAY'S JOURNEY.

With the opening of the motor coach season the question as to what should be the maximum distance for a day's run by a coach is being discussed by those concerned with long-distance traffic. Obviously, many things have to be taken into consideration when planning this kind of service; for the question of cost must govern to a considerable extent the distance and time factors. The remarkable development of the services has been made possible by the advent of the powerfully engined and well-equipped vehicles which the chassis manufacturer in conjunction with the coach-builder has evolved for this traffic. With several of the latest types of low-framed chassis a speed of 40 to 50 miles per hour can be run with safety on an open road in favourable circumstances. The limit of distance must, however, be determined by average speed, for even without a legal speed limit the conditions prevailing in most towns and villages call for slow running when passing through populated places. Therefore the high rate of running mentioned must be at least halved over an end-to-end run of some 200 miles. Allowing only an hour for stops on the journey, this means at least nine hours for the 200 miles. The careful planning of the seating in the modern coach, together with the improved springing of the chassis, gives the utmost comfort for the passenger, but even in the most luxurious vehicle there is a limit to the time it is reasonable to expect to spend on such a journey. Low fares will always draw a certain amount of custom during the summer months at holiday seasons from a class to which the cost of the journey is of greater importance than the degree of comfort, but in order to maintain regular services at competitive fares, with the present standard of comfort, and to

Digitized by Google

OMNIBUS AND COACH SECTION

conform to the legal regulations, it would appear that the limit of a reasonable day's journey by motor coach is about 200 miles, beyond which the railways exert a strong call, both in regard to time and comfort.

UNSPLINTERABLE GLASS.

Nothing like the progress that has been made in fitting private cars with unsplinterable glass has been effected in the case of public vehicles. While one or other make of "safety" glass has become standard in the lowest priced small cars, the specifications of many coaches and omnibuses provide for the use of this glass as entailing extra payment. Thereupon the average purchaser unwisely abandons his intention of removing from his traffic risks a source of injury to passengers and driver that figures in most accounts of road accidents. Such action on the part of the operator may sooner or later cause him regret, and possibly an increase in his insurance premium as compared with the quotation for a vehicle fitted with unsplinterable glass. It is not only collision of one vehicle with another that causes glass to fly with dreadful results. Skidding is often answerable for bad smashes between vehicles and by contact of one conveyance with an adjoining structure. A prominent instance of the latter description occurred on May 9 on the temporary Waterloo Bridge, which has only just been repaved with asphalte. Travelling south at midnight in a storm of rain, an omnibus violently skidded into the girders on the near side of the bridge, the staircase and platform being torn away, while the windows on the same side were smashed, covering the passengers with glass. "Safety" glass has saved many lives and injuries, and everything possible should be done to extend its use. One essential aid is that there should be a guarantee of the efficacy or standard of performance of the glass. This has been asked for by some manufacturers in order to safeguard themselves and the public. A request to that effect has been made to the Society of Motor Manufacturers and Traders, who have referred it to their Technical Committee. The outcome, it is expected, will be a suggestion that the National Physical Laboratory and the British Standards Association should give attention to the matter.

AN ANTI-SKID SURFACE.

The safety of all road users and the economical operation of transport demand that the road surface should not conduce to skidding. Then it should be possible to secure the great desideratum of the punishment of drivers who endanger life by skidding, due either to dangerous speeds or by the use of tyres with the tread too far worn. With the higher speeds that are customary thereon it has been shown that on the new arterial roads wet and drying surfaces are conducive to skidding, and in an endeavour to counteract it heavy expenditure has been incurred. During the past year the National Physical Laboratory, in collaboration with the Ministry of Transport, has been testing the resistance to skid exerted by various surfaces, and under the legislation passed a year or so ago plans have been made for constructing test sections of various classes of surfacing material. Meanwhile both town and county authorities have to incur the expense of gritting and sanding, a treatment that is only really efficient when there is frost or snow. Lately the Ministry of Transport has experimented with a surface treatment which gave remarkably successful results last August during the Ulster Grand Prix race, in which the cars travelled at a speed of 120 M.P.H. During the practice preceding the race the drivers complained of the glassy surface of the roads. Consequently the Ulster road department and the Royal Automobile Club had the surface specially treated, with the result that it became so remarkably skid-proof that the treatment has since been experimented with by the Ministry of Transport. It comprises an emulsion into which must be rolled granite chippings of a definite screen and quantity. This skid-resisting surface is stated to wear well, to last for three or more years, and not to be costly for redressing. The Ministry of Transport is understood to have informed county road authorities that in future no financial grant will be made for any scheme for a new road with a smooth surface. Old smooth-surface roads, when needing repair, are to receive similar treatment.

OMNIBUS V. TRAMCAR.

An interesting spectacle, which probably has no official significance, is to be witnessed on half of the ten miles Shepherd's Bush-Uxbridge route of the London United Tramways. From the Hanwell garage, which is the nearest to the A.E.C. Works, where the vehicles are manufactured, the L.G.O.C. is running to two destinations—Oxford Circus and London Bridge station—the available supplies of the new "S.T." omnibus. These vehicles are the most striking to be seen on the London streets, as readers may have gathered from the illustrations and description given in our issue of February 13 last. Riding in them and watching their operation, it is difficult to discern any direction in which these top-covered double-deck omnibuses, which seat fifty passengers and carry ten persons standing on the enlarged platform at rush hours, can be improved. Then one wonders whether the sumptuous vehicles have exercised any adverse effect on the 60-seat tramcars that have not the luxury claims of their friendly rivals. Carrying apparently only ten more passengers seated, the cars are speedy, efficiently kept up, and run on a well-maintained track. While lacking the luxury of the omnibuses, the cars also cannot carry at the busy periods the dozen or so more people who would crowd into them if the covered top deck came out in a canopy over the platforms. Competition from the omnibuses of the London Traffic Group is, of course, not so serious for their tramways as would be the case if the omnibuses were independently owned. How serious such uncalled rivalry can be was shown on the Uxbridge Road before the London Traffic Act brought order out of chaos. Still, the provision of superior omnibuses must have an effect on the receipts of the tramways, thus emphasising a contention that the management of the latter has always advanced, namely, that comfort and speed must be kept to the forefront. It is in support of that truism that the new improvement programme has been prepared, following the construction of the experimental cars of the past few years.

Digitized by Google

OMNIBUS AND COACH SECTION

PETROL OMNIBUSES RUNNING ON FUEL OIL.

REMARKABLE TRIAL OF A BRITISH INVENTION BY THE PHILADELPHIA RAPID TRANSIT CO.

Mr. J. A. Queeney, vice-president of the Mitten Management, Philadelphia, U.S.A., an organisation which controls the Philadelphia Rapid Transit Co., has read the following paper before the Philadelphia Engineers' Club. He describes exhaustive and successful tests of the Godward gas generator, which is a British invention.

During the present year the Philadelphia Rapid Transit Company will equip all of its omnibuses with a device to permit the use of low-grade fuel oil in the engines. Experiments have been made on the device over a period of two years, and at the present time twenty omnibuses are operating successfully with the fuel oil. The practicability has been so demonstrated that the company will go ahead with the equipping of all its 570 city and inter-city omnibuses.

The fuel now being used is a 38–42 oil, Baume scale. The performance of the engine with this fuel compares very favourably with the performance secured with gasoline. Idling speed, acceleration and power, all essentials to good operation, are obtained with this device with a fixed carburetter setting. The amount of fuel necessary to generate 1 KW.-HR. is 5½ per cent. less than the amount of gasoline needed, using the same carburetter setting. The saving in the cost of fuel by burning oil instead of gasoline amounts to approximately 29 per cent. Since there are practically 85,000 motor omnibuses in operation in the United States at the present time the possible saving in the cost of fuel represents more than $50,000,000 per year.

Although the engine requires added equipment to burn the fuel oil, either oil or gasoline can be used when it is installed. If an omnibus using fuel oil travels away from the point of supply and runs out, the tank may be filled with gasoline and without any adjustment the omnibus will proceed, with no perceptible change in the performance of the vehicle.

The omnibuses using fuel oil are on the same maintenance schedule as those using gasoline. One of the omnibuses has been operated more than 250,000 miles and has been closely observed to see if the new fuel would have any effect on the engine to require additional maintenance. Nothing could be found to indicate any additional wear or any change whatsoever in the condition of the engine.

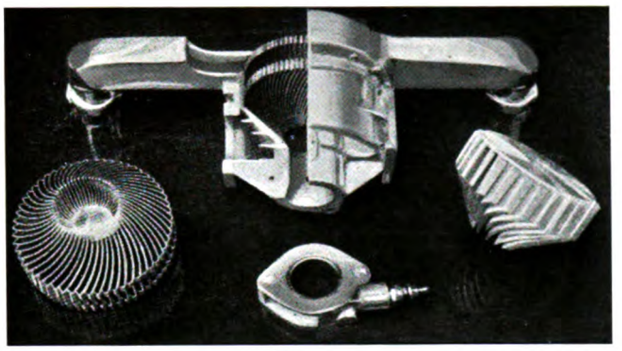
When fuel oil was first used a little trouble was experienced in the exhaust smoke, particularly when the engine was idling. This trouble was remedied by the simple expedient of removing the throttle valve from the conventional location in the carburetter below the gas generator to a point where the mixture enters the intake manifold.

The device, manufactured by the Godward Gas Generator Co., consists of an aluminium pot in which are set a number of stationary thin curved plates, radiating from a central core. The lower edges of the plates are in contact with the aluminium pot, which is heated by the exhaust of the engine. The fuel is drawn from a standard carburetter through the inside of the pot over the surface of the warm plates, and is converted into a dry gas. It then passes through the intake manifold into the cylinder for burning. The deflector plates that are heated have a total surface of 2,000 sq. in., so that complete conversion to a hot gas is assured.

The device as designed for the use of fuel oil has incorporated in it an electrical heating unit which is used during the starting period only. By means of this unit the temperature of the fuel is raised sufficiently to start the engine. The unit receives its energy from the storage battery and consumes 80 amp. at 12 volts for about one minute, the time required for starting the engine under present conditions, which is no greater than that required to start with gasoline.

In addition to the Godward device a special intake manifold is used. The new manifold has no sharp bends, pockets or hot spots, and it has a much greater cross-sectional area and consequently less restriction than the conventional manifold. A reduction in the intake manifold velocity is permissible because of the dry gas produced in the gas generator. This construction also allows an increase in the quantity of mixture entering the cylinder, thus increasing the volumetric efficiency of the engine. No other special equipment is required. The same carburetter as supplied by the manufacturer with the engine is used.

The problem of operating gas engines successfully with fuel oil without the use of gasoline for starting or without complicated mechanism has been considered by many engineers as impossible of solution and by others as extremely doubtful. The apparent advantages, however, seemed to be too great not to warrant a trial. Accordingly, the company accepted an inventor's device about two years ago and installed it on one of the taxi-cabs for trial. After numerous tests it was found that, while it was possible to operate on fuel oil by starting the engine on gasoline, the general performance was so unsatisfactory that it could not be given serious consideration. For example, when good idling performance was obtained, it would be impossible to secure sufficient power output for satisfactory operation at the usual speed, and when it was possible to obtain sufficient power output, the engine would not

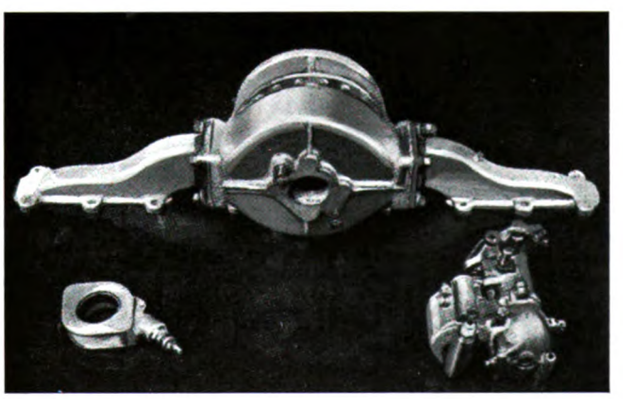


Cut-away view of the Godward generator, showing the stationary deflector.

(This consists of several thin curved plates, and is mounted inside. The electric heating unit for starting and two types of deflectors also are shown.)

operate satisfactorily at the lower speeds. After many months of effort it was decided that the experiment was not being conducted along the proper lines.

In January, 1927, the Godward gas generator was brought to our attention as a device for saving gasoline and increasing the output of the engine. The device was given a trial and found to be satisfactory for saving gasoline. Observations made through a glass window, inserted in the intake manifold, showed that with gasoline and a standard carburetter and manifold wet gasoline



Bottom view of the main aluminium chamber.

(The wet mixture from the carburetter enters through the hole and is vaporised within the chamber by the heat from the exhaust.)

was carried into the engine's cylinder under all running conditions. With the Godward gas generator installed, however, no evidence of a wet mixture could be found in the manifold.

At the present time twenty petrol-electric omnibuses are equipped with the device and are operating in inter-city service where heavy grades are encountered. Since the installation of the device these vehicles have made more than 300,000 miles. The generator has enabled us to increase the horse-power output of the engines of these particular omnibuses 15 per cent., resulting in a decided improvement in the performance of the vehicles, especially on hills. The additional output has enabled us to increase the scheduled

Digitized by Google

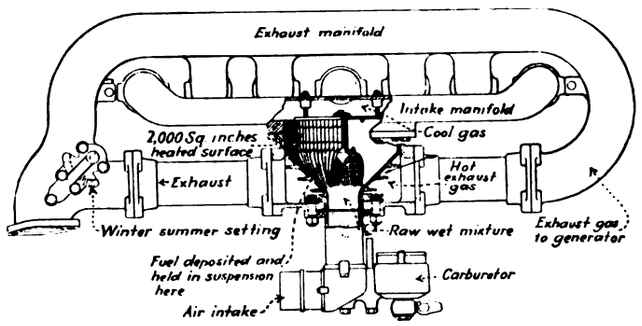
OMNIBUS AND COACH SECTION

speed of inter-city lines without any increase in gasoline consumption in pounds per brake-horse-power per hour.

In addition to the twenty petrol-electric omnibuses that are operated with gasoline, we also have five taxicabs of the standard mechanical-driven type that are equipped with the Godward gas generator. These taxicabs have four-cylinder Yellow Knight engines. The installation of the generator not only has improved the performance of the vehicles decidedly, but also has resulted in a reduction of gasoline consumption of 9 per cent.

During this development we concluded that the gas generator could be modified and used as a basis of the equipment necessary to operate on fuel oil successfully. After numerous experiments and tests the present equipment was developed and we now have twenty omnibuses that have operated more than 250,000 miles on fuel oil. Six of these are equipped with an improved device, including all modifications and changes made to date.

In addition to the apparatus used for the burning of fuel oil, we also have developed apparatus for analysing the exhaust. This equipment serves two purposes—first, of checking the engine's efficiency, as any unburned gas that is present in the exhaust represents a definite power loss, and second, of analysing the exhaust to reduce to a minimum the poisonous carbon monoxide gas.



A total heated surface of 2,000 sq. in. within the chamber vaporises the mixture of fuel oil before it enters the intake manifold.

(The exhaust manifold is designed so that the full exhaust or none can be passed through the generator.)

It is not unusual to hear occasionally of the death of some unfortunate person due to carbon monoxide gas. No doubt many people believe that because of the size of the motor omnibus it is a great offender by filling the air with this poisonous gas. Recognising the importance of reducing to a minimum the carbon monoxide gas we conducted many experiments and finally developed the exhaust analysing equipment, now installed in the automotive research laboratory of the Hunting Park omnibus shops.

Our studies made with this equipment prove conclusively that by maintaining the engine in good mechanical condition and by proper adjustment of the carburetter the exhaust gas can be controlled. A survey by engineers of the United States Bureau of Mines disclosed that "the percentage of carbon monoxide gas with the majority of cars is between 5 and 9 per cent." With this apparatus we have no difficulty in decreasing the carbon monoxide content from the exhaust of our omnibuses to 3 per cent. or less. We have obtained as low as 1 per cent. under both idling and operation conditions.

Gasoline, as sold at any filling station, contains approximately 85 per cent. carbon and 15 per cent. hydrogen. During the burning process inside the engine the gasoline is broken up into various gases, the most common of which are carbon monoxide, carbon dioxide, hydrogen, methane and gasoline vapour. Of this group the two most important are carbon monoxide and carbon dioxide. If compression were perfect all the carbon monoxide would be burned to carbon dioxide, a harmless gas, but since this condition is never attained in the modern automobile, we have to deal with carbon monoxide, which is poisonous.

From the foregoing it is evident that an instrument which accurately measures the carbon dioxide in the exhaust gas is valuable as giving an indication of the performance of the engine. Numerous tests have shown that a motor in good condition produces between 10 and 12 per cent. carbon dioxide, and if, therefore, the engine under consideration shows a much lower figure, it is evident that either the carburetter is poorly adjusted, the ignition is faulty, or the compression is low due to leaky valves or some other cause.

It is not practical to measure the carbon dioxide directly with an electrical indicator, so an instrument has been developed which measures the carbon monoxide, hydrogen and other combustibles present in the exhaust. This instrument records the incompleteness of combustion. The apparatus consists of two small cylinders, each containing a wire of special composition. These wires are connected to a battery and to a meter through suitable resistances. The meter is simply a moving coil galvanometer. When the switch connecting the batteries with the wires in the two cylinders is closed the meter will register zero, until both cylinders are filled with air and the entire electrical system is balanced. In operating a connection is made between the exhaust manifold of the engine and the inlet pipe of the testing apparatus. As the exhaust gas enters one of the cylinders it draws a small quantity of air through a nozzle. The resulting mixture, being combustible, is ignited when it comes in contact with the heated wire. The burning of the gas increases the temperature of the wire, the rise being effected by the percentage of the combustibles contained in the gas. The change of resistance of the wire caused by the increases in temperature disturbs the electrical balance of the two circuits, arranged as a Wheatstone bridge, and causes a deflection of the galvanometer. The deflection varies in accordance with the percentage of combustibles present in the exhaust, and by referring the galvanometer reading to a chart the percentage of carbon monoxide, hydrogen and other combustibles can be determined. Definite standards are established, and if the meter reading is above or below these standards the operator adjusts the carburetter or ignition, or makes other changes until the meter reading becomes normal.

To confirm their own tests the Philadelphia Rapid Transit Company engaged the services of Professors Autenreith and Baum of the College of the City of New York to test the device developed for burning fuel oil and the apparatus for the analysis and control of the exhaust. They tested omnibuses using standard equipment and others using the vaporising device for comparing results, and then conducted a series of tests with different fuels and types of equipment on a single unit.

Mr. Queeney's paper concludes with the lengthy report of the two Professors. In the course of the document they say :—" From the various runs made under different conditions described we are convinced that it is practicable to operate your omnibuses, on either gasoline or fuel oil with the gas generator equipment and standard carburetter and secure a carbon monoxide content of the exhaust gases of less than 3 per cent. under your conditions of operation. Our tests showed that the gas generator equipment had the effect of reducing the carbon monoxide content of the exhaust gases without reducing the power. Of course, for the best results with any kind of fuel the proper carburetter settings must be determined, but as far as operation on the road is concerned a change from fuel oil to gasoline without changing the carburetter setting will not be apparent to the driver."

For the text we are indebted to the *Electric Railway Journal* (New York).

GLASGOW OMNIBUS TEST CASE.

Stipendiary Smith, at Glasgow Central Police Court, on April 17, gave judgment in the charge against the Lanarkshire Traction Co that they did on February 15 use a motor vehicle for hire as a stage carriage within the city without a certificate from the Magistrates' Committee, contrary to the Police Act, 1866.

The vehicle, the Stipendiary stated, had been certified as a stage carriage by the Magistrates' Committee in May, 1929, but owing to a breach of the conditions the certificate was revoked on February 10 last. Counsel for the respondents maintained that they had statutory powers to run omnibuses, and on the occasion in question no certificate was required; that even if a certificate were needed the Committee had no power to add any condition and that the Committee had no power to cancel it. The powers given to the company by the Acts of 1908 provided that they might provide, work and use omnibuses, but not to a greater distance than five miles from any point on their tramways provided they observed any by-laws of any local authority within the districts in which vehicles might be run. His Honour was of opinion that the Committee had power to revoke a certificate following a breach of any of its conditions. Therefore he held that the vehicle in question ought to have been certificated, and he imposed a modified penalty of £1. An agent for the respondents asked for a stated case.

Digitized by Google

OMNIBUS AND COACH SECTION

A MAUDSLAY LUXURY SALOON.

The subjoined illustration shows one of the many "Mentor" coaches of the luxury type supplied by the Maudslay Motor Co., Ltd., of Coventry, for tours around the outlying districts of Birmingham, as well as for places further afield. The vehicle illustrated has a four-cylinder engine, and is one of the Regent parlour coaches run by Jakeman's Safety Coaches. It accommodates 32 passengers on luxury seats, the effect of which is enhanced by balloon tyres (twins at rear), by the springing, and by the use of the Dewandre vacuum-servo brakes applied to the four wheels.

In a body with an overall length of 26 ft., ample room is given to each passenger. The seats have high backs, and the bodywork and all appointments are of high grade. As the roof has a sliding head the comfort of the saloon can be adapted to any condition

Maudslay "Mentor" for Regent Parlour Coaches.

of weather. The drop windows are operated by the latest Rawlings' device. For the driver's cabin there is a separate sliding head. Adjustable foot-rests automatically adjust themselves to suit the passenger. Two entrances are provided. In addition to lockers for small luggage on each side of the body, a carrier is available at the rear end of the roof.

THE CROSSLEY SPARE WHEEL CARRIER.

An interesting and efficient device for carrying and manipulating the two spare wheels for the Crossley 30-70-H.P. medium six wheelers is shown in the subjoined photograph. The wheel and tyre are depicted in a position ready for loading. The wheel is placed on

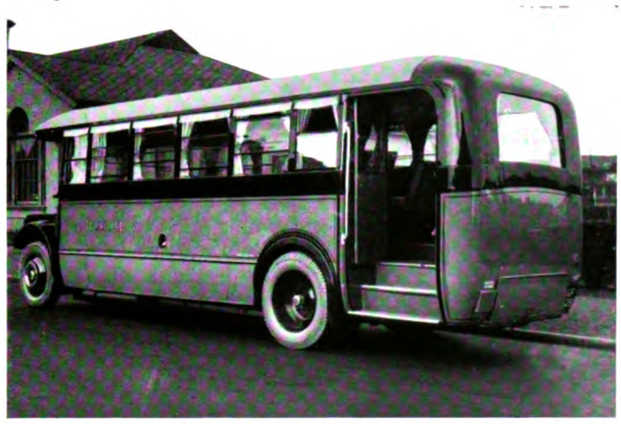
Crossley Spare Wheel Carrier.

a jointed arm of the carrier let down to within two inches of the ground on the near side of the vehicle. By rotating the wheel it lifts itself into position behind the dash, the arm also ascending to its upright position.

L.G.O.C. WINDSOR EXPRESS SERVICES.

The London General Omnibus Co. on Easter Sunday added another express coach service to those which have been inaugurated this year. It is from Windsor Castle to Charing Cross, Victoria Embankment, and is run half-hourly in both directions. The route is through Slough, Colnbrook, Cranford, Chiswick, Hammersmith, Kensington and Piccadilly. The single fare for the full distance is 2s., the return charge being 3s. 6d. Through fares to certain Underground stations are issued via Hammersmith Underground station.

The coaches comprise the "Regal" chassis of the Associated Equipment Co., carrying luxurious bodies seating 27 passengers.



"Regal" Coach for L.G.O.C. "Express" Windsor Service.

The body gives more headroom than is usually seen in coaches, and there is a sliding entrance door on the near-side at the rear, with an emergency door on the off-side behind the driver's cab. As the last coach does not leave London until 11.45 p.m., the service is convenient for people attending evening amusements.

NATIONAL OMNIBUS AND TRANSPORT CO.

Presiding at the annual general meeting on April 15, Sir John Jarvis said that the report marked the change from a transport to a holding and managing company. In 1928 the Railway Companies' Road Transport Act was passed which gave power to operate road vehicles, and the directors realised that these new powers might create formidable competitors. They had to choose between competition and co-operation and they chose the latter as the wiser alternative. Accordingly the Western National Omnibus Co. was formed with an authorised capital of £1,000,000, and the Southern National Omnibus Co., with an authorised capital of £500,000 and a paid-up capital of £125,000. As a result of the changes he looked for improved facilities with financial advantages to the companies. Since the year ended they had concluded their deal with the L.N.E.R. and the L.M.S.R. and a new company had been formed with a capital of £500,000. This company would operate in the areas previously worked by the "National" in the Eastern and Midlands districts. The "National" would manage the operating side of the business for all the associated companies at a fixed rate for each mile run. They would thus be assured of the same efficiency as hitherto, while the railway companies obtained the advantages of their technical organisation; the services of Mr. W. Iden, their managing director, to whose ability the company owed so much; Mr. B. Smith, their general manager, and their associates. The profit and loss account showed a trading profit of £67,670, which only covered a part of their interest. After deducting directors' fees and remuneration and auditors' fees, there was a balance of £64,120. Adding the carry forward of £2,208 and the profit on realisation of investments, £23,625, the sum available for dividends was £89,954. Deducting the preference dividend, there remained a disposable balance of £67,554. They proposed to capitalise certain reserves to increase this balance, and to distribute in new ordinary shares a bonus of 50 per cent., leaving to be carried forward £38,098.

Digitized by Google

OMNIBUS AND COACH SECTION

A.E.C. COACHES FOR CONTINENTAL TOURS.

The re-organised Motorways (1930) Ltd., have placed an order for the latest type of coach with the Associated Equipment Company, of Southall. Exterior and interior views of one of the vehicles which are being used are given on this page. The chassis has a six-cylinder engine developing 95 H.P. The utmost luxury is given in the roomy body, which is fitted with high-backed, pneumatic-cushioned seats. A buffet is provided, and lavatory accommodation is, of course, available.

A British Coach for Austrian Tours.

Pneumatic Seats of the A.E.C. 95 H.P. Coach.

TOURS FROM THE SOUTH.—An attractive programme of tours to all parts of Great Britain is announced by Southdown Motor Services, Ltd. The coaches used on the trips are the Leyland "Lioness."

COMMER CARS, LTD., report that, owing to the reception accorded to the new Commer models at Olympia last year, the volume of business resulting has so far exceeded anticipation that to keep pace with the demand a 24-hour day has been found necessary in the works.

MUNICIPAL OMNIBUSES AND PETROL.—For some time efforts have been made by municipal tramway departments to secure concessions in the price of petrol, and recently a conference was held in London between representatives of the petrol combine and the Municipal Tramways and Transport Association. It is understood that no definite arrangement was reached.

BUYING THE CHEAPEST PETROL.—During a discussion by Barrow Council on the purchase of petrol for the Tramways department, Councillor Fisher urged that the order should be kept in the town, as the importation of oil and petrol was a local industry. Councillor W. A. Pickthal, chairman of the Committee, replied that the manager had received instructions to obtain the cheapest possible petrol.

VULCAN OMNIBUSES IN HONG KONG.

Numerous deliveries of omnibuses manufactured by the Vulcan Motor & Engineering Co., Ltd., of Southport, have been made to operators overseas, where the various models have given as great satisfaction as in this country for efficiency of service and freedom from defects.

Some of a Hong Kong Vulcan Fleet.

Vulcan "Prince" 32-Seater in Hong Kong.

The two illustrations appended show the Vulcan "Prince" and "Duke" omnibuses in Hong Kong, the former seating 32 passengers and the latter 20. One is depicted proceeding, heavily laden, in Queen's Road. The other three were the last to turn out of the garage one morning.

LEYLAND OFFICE AT BIRMINGHAM.—Leyland Motors Ltd. have opened a branch office in the Chamber of Commerce Building, 95 New Street, Birmingham. Mr. F. Gardiner is in charge, and his services are at the disposal of operators residing in Mid-Wales or within a radius of about thirty miles of Birmingham.

A "SPECIAL" OMNIBUS CLAIM.—At the Burgh Court, Hamilton, a summons was heard against the Lanarkshire Traction Co. for running an omnibus at an unauthorised time. It appeared that the vehicle was used to deal with traffic from the places of amusement, and was marked "special" in accordance with powers obtained in the company's Provisional Order, 1929. Provost Anderson dismissed the summons, but stated a case for appeal.

L.G.O.C. AND TICKET LITTER.—In reply to a request by Lady Henschel that receptacles for used tickets should be placed inside their omnibuses, the London General Omnibus Co. has stated that the fitting of boxes would for the present be useless. The company has, however, placed notices in the lower and upper saloons asking passengers to drop the tickets inside the omnibus, thus avoiding litter in the street. If there is sufficient response to this appeal receptacles will be provided.

Digitized by Google

OMNIBUS AND COACH SECTION

HEAVY MOTOR CAR AMENDMENT ORDER.

NEW WEIGHT LIMIT FOR PUBLIC SERVICE VEHICLES.

The Ministry of Transport has issued the Heavy Motor Car (Amendment) Order, 1930, made by the Minister of Transport. This increases the maximum legal weight to 9½ tons. This decision is the result of prolonged effort by the Society of Motor Manufacturers and Traders and the Municipal Tramways and Transport Association (Incorporated).

The essential portion of the Order is as appended :—

(1) This Order may be cited as " The Heavy Motor Car (Amendment) Order, 1930," and shall come into force on the first day of June, 1930.

*(2) The Heavy Motor Car (Amendment) Order, 1927, shall have effect as though sub-paragraph (i) of sub-division (*a*) of paragraph 5 of Article II thereof were omitted, and the following sub-paragraph were inserted in its place :

" (i) Where the heavy motor car is double-decked and has all its wheels fitted with pneumatic tyres the registered axle weight of any axle shall *not exceed* 6 *tons*, and the sum of the registered axle weights of all its axles shall *not exceed* 9½ *tons* ; in all other cases the registered axle weight of any axle shall not exceed 5½ tons, and the sum of the registered axle weights of all its axles shall not exceed 9 tons."

(3) Nothing in this Order shall—

(*a*) affect the operation prior to the commencement of this Order of the Regulations made by the Heavy Motor Car Orders, 1904 to 1927, or anything duly done or suffered under those Regulations ; or

(*b*) affect any right, privilege, obligation, or liability acquired, accrued, or incurred under those Regulations ; or

(*c*) affect any fine or punishment incurred in respect of a breach of those regulations ; or

(*d*) affect any legal proceeding or remedy in respect of any such right, privilege, obligation, liability, fine or punishment ;

and any such legal proceeding or remedy may be instituted, continued, or enforced, and any such fine or punishment may be imposed as if this Order had not been made.

*The omitted paragraph referred to provided as follows :—

" (*a*) (i) The registered axle weight of any axle of the heavy motor car shall not exceed 5½ tons and the sum of the registered axle weights of all the axles of the heavy motor car shall not exceed 9 tons."

Copies of the Order will be obtainable from H.M. Stationery Office, Kingsway, W.C.

THE BUDGET AND MOTOR VEHICLES.

RETENTION OF THE MCKENNA DUTIES.

Contrary to widespread predictions, Mr. Snowden, Chancellor of the Exchequer, did not announce an addition to the petrol tax in the Budget which he introduced on April 14. Instead, there were reductions in the road licence charges for two classes of motor vehicle, to take effect from July 1 next. Goods vehicles over 2 tons, but not exceeding 2½ tons unladen weight, will pay £35 instead of £40 now charged, with a rebate of 20 per cent. for vehicles fitted entirely with pneumatic tyres. Motor cycles not exceeding 224 lb. (instead of 200 lb. as hitherto) will pay £1 10s. The estimated loss to the Exchequer of these concessions is £20,000, and to the Road Fund £50,000 in respect to the goods vehicles and £40,000 for motor cycles.

THE PETROL-ELECTRIC VEHICLE.

As from January 1, 1931, it is proposed to provide that for the purposes of the duties charged on mechanically-propelled vehicles, a vehicle shall not be deemed to be an electrically-propelled vehicle unless the electrical motive power is derived either from a source external to the vehicle or from an electric storage battery which is not connected with any source of power when the vehicle is in motion. This provision, we may point out, is the Treasury's reply to their defeat in the appeal by Tilling-Stevens Motors, Ltd., to the House of Lords.

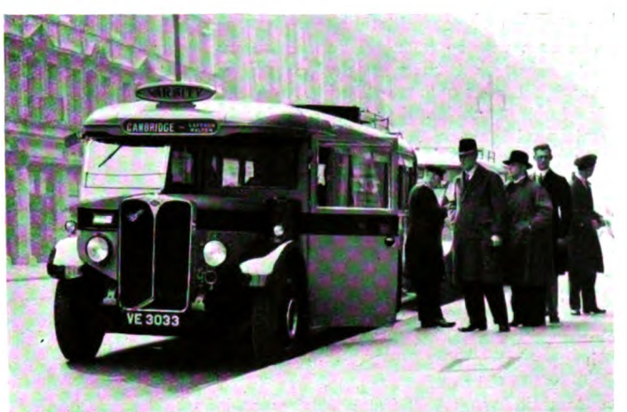
Adverting to the McKenna duties and the silk duties, the Chancellor stated that they were imposed by his predecessor, and they brought in nearly £10,000,000 a year. He regretted that the financial position which he had inherited would not permit him to repeal these duties in the present Budget, but the pledge of the Government given last year still stood. This pledge was that the duties would go " before this Parliament ends four years hence."

USERS DISAPPOINTED.

Mr. F. G. Bristow, general secretary of the Commercial Motor Users' Association, has stated that disappointment would be felt in every section of the commercial motor industry that Mr. Snowden had not made a substantial reduction in the taxation of commercial vehicles. An important direction in which relief had been hoped for was an increase in the allowance for such vehicles fitted with pneumatic tyres.

FROM REGENT STREET TO CAMBRIDGE.

Numerous journeys are made daily by the Varsity Express Motors, of Cambridge, between that town and Regent Street, London. A Sunday morning departure from Regent Street is shown in the accompanying illustration. In a large measure the success of this



A.E.C. "Regal" Coach in Express Work.

line of luxury coaches is attributable to the use of the " Regal " six-cylinder vehicles supplied by the Associated Equipment Company. The " Regal " chassis, which takes a 32-seat body, was described and illustrated in this journal of November 21 last.

RAIL AND ROAD TRAFFIC CO-ORDINATION.

L.M.S. AND L.N.E.R. PURCHASE INTERESTS IN NINE COUNTIES.

A communication issued by Sir John Jarvis, chairman of the National Omnibus and Transport Co., announces that the London Midland and Scottish Railway and the London and North-Eastern Railway have purchased the interests of the National Omnibus and Transport Company in the following counties : Northamptonshire, Bedfordshire, Huntingdonshire, Cambridgeshire, Essex, Suffolk, Middlesex, Hertfordshire, and Buckinghamshire. A new company—the Eastern National Omnibus Company—has been formed with a capital of £500,000 to operate the services. The chairman will be Sir John Jarvis and the Board will consist of Messrs. W. J. Iden, J. H. Follows, G. F. Thurston, C. J. Selway, H. G. Burford, B. Smith, and H. L. Thornhill. A programme of increased facilities and improved vehicles is in contemplation.

On April 14 the L.M.S.R. announced the acquisition of the omnibuses of the Majestic and Empress services which operate from Preston. The services are in course of being merged with those of the Ribble and Rishton and Antley undertakings, in which the Midland Company is interested.

BIRMINGHAM AND MIDLAND OMNIBUS DEAL.

The Birmingham and District Investment Trust, a subsidiary company of the British Electric Traction Co., has announced the completion of the sale of half their interest in the Birmingham and Midland Motor Omnibus Co. to the London Midland and Scottish Railway Co. and the Great Western Railway Co. The directors propose to recommend a bonus of £1 six per cent. cumulative redeemable preference share for every ordinary share held, and a final dividend of 6 per cent. for the year 1929 on the ordinary shares.

Digitized by Google

OMNIBUS AND COACH SECTION

THE ROAD TRAFFIC BILL.

COMMITTEE DECISIONS AFFECTING TRANSPORT AUTHORITIES.

The Standing Committee of the House of Commons on the Road Traffic Bill met for the first time since the Easter Parliamentary recess on April 29. The Chairman, Sir Hugh O'Neill, presided.

On Clause 45, which empowers the Minister of Transport to restrict the use of vehicles or certain classes of vehicles on specified roads, Sir B. Peto moved an amendment which would have the effect of placing the proposed restrictive power in the hands of local authorities.

Mr. Morrison, Minister of Transport, said that the purpose of the clause was to secure the enforcement of certain national standards in regard to the restriction of the use of roads. The position would be that the local authorities would ask for restrictions to be made, and this request would need to be confirmed by the Minister of Transport.

Mr. Graham White said that, as the speed limit as a whole for private cars was to be abolished, there was in some localities a strong feeling that they should be entitled to have local speed limits within their own boundaries.

Mr. Morrison said his view was that a local authority which desired a local speed limit would have to make application in respect of a certain road or roads. He did not think it was likely that the Minister would grant a speed limit for a whole town unless it could be shown that all its streets were in a similar position.

The amendment was defeated by 31 votes to 4.

Clause 52, which authorises local authorities to recover compensation for damage done to roads by heavy extraordinary traffic, was discussed on May 1, and, with certain amendments, agreed to.

THE APPOINTMENT OF TRAFFIC COMMISSIONERS.

On May 6 the Committee considered Clause 60, which provides for the appointment of three Traffic Commissioners for twelve areas, excluding the City of London and the Metropolitan Police District. The Commissioners will issue licences and exercise other powers under the general direction of the Ministry of Transport.

Lieut.-Col. Ashley moved the omission of the word "general" which qualifies "direction" in the clause. The Commissioners, he said, ought not to be subject to the specific directions of the Minister. As Clause 60 stood, the Minister would be put in the impossible position of having to answer in Parliament for the proper administration of that part of the Act without having power to require the Commissioners to obey his rulings.

Mr. Morrison, Minister of Transport, said the amendment seemed to imply a misreading of the intention of that part of the Bill. The Minister of Transport would appoint the staff of the Commissioners and the technical officers, fix their salaries, and so on, and that was clearly necessary in order that the staffs should be up to Civil Service standards. He had no intention as a Minister to direct the Commissioners on every point of their duty; he would not be answerable in Parliament for their specific actions. He would not be answerable for questions, for example, as to whether the Commissioners in an area did right in granting or refusing licences; he could only answer for the general actions of the Commissioners. He desired that they should act on certain national principles prescribed by the Ministry, but without assistance. There would be a right of appeal to the Minister, who would thus be enabled to enforce national standards.

Colonel Ashley withdrew his amendment.

In the course of further discussion, Mr. Morrison said the Minister would be able to appoint a deputy to act in any area.

In the course of a discussion on the clause providing that any person appointed as a Commissioner should be required, before appointment, to declare whether he was or had been in any way financially interested in a transport undertaking within the area, Colonel Ashley said that in fairness the same conditions ought to be applied to public as to private transport undertakings, and he considered that councillors in county boroughs ought to be kept off the traffic boards.

Mr. Morrison proposed an amendment to provide that no member of the House of Commons should be eligible for appointment as a Commissioner, and Mr. Remer moved that this disqualification should be extended to members of the House of Lords. Mr. Morrison's proposal to exclude members of the House of Commons was agreed to, and Mr. Remer's amendment to exclude members of the House of Lords was rejected.

In reply to Colonel Ashley, Mr. Morrison said it was not intended that the position of the two nominated Commissioners should be places of profit in the ordinary sense of the term. It was undesirable that he should state the salary proposed for the Chairman of Commissioners before he had consulted the Chancellor of the Exchequer, but it should be substantial in order to command the services of men of ability, and to raise them above the possibility of bribery.

Clause 60 with amendments was agreed to.

On May 8, on Clause 69, which requires the operator of a stage or express carriage to hold a road service licence, several amendments were proposed and withdrawn. Colonel Ashley said the Commercial Motor Users' Association contended that it would be difficult to frame the time-tables and fare notices that the clause required. Mr. Morrison, Minister of Transport, pointed out that occasional road services ought to be placed under public control as much as the regular services. He could not see that there would be any difficulty in submitting time-tables. There was provision for occasional licences being issued.

POWERS OF MUNICIPALITIES, MONOPOLIES AND FAIR WAGES.

Colonel Ashley reminded the Committee that one of the most important parts of the Bill would be the clause in regard to transport powers of municipalities, which the House of Lords had deleted and which the Minister intended to have reinserted. He wished to know whether the clause would apply to the municipal services. Mr. Morrison replied that it was intended to put municipal services in a position of equality—neither more nor less—than private enterprise services.

Mr. Leach said the large municipalities were very uneasy with reference to this clause as they thought it would take away certain of their powers conferred by Acts of Parliament.

Mr. Morrison said the municipal authorities had raised the point that as they were to lose their licensing powers they ought to be given some protection in their own boundaries. The line he had taken was that so far as the Commissioners were concerned municipal and private undertakings should be placed in the same position. If that were not done difficulties would arise with regard to the co-ordination of transport. He suggested that the discussion be postponed until the Committee reached Part V.

In regard to the position of companies which had monopoly powers, Mr. Morrison said the whole question was now being considered. He desired to secure a co-ordinated national system of transport, and that could not be obtained if there were to be permanent holes in the system. Mr. Morrison opposed an amendment to eliminate words in the clause which required the Commissioner, in considering the issue of road service licences, to have regard to all forms of passenger transport, including railways. He contended that it would be undesirable to have excessive transport. This would be bad for the country, bad for capital, and cause sweated labour. They could not have a reckless competition between railways and road transport.

The amendment was negatived.

Mr. Morrison moved the omission of part of the clause which provides that conditions on which persons are employed shall not be such as to endanger the safety of the public or impair the position of the services. His intention, when inserting these words, was, he said, that the services should not be manned by inadequately paid people. As these words would be difficult to apply, he felt it would be better to omit them and at a later stage to face the question of inserting the observance of a fair wages resolution by the House of Commons, as one of the conditions on which the road service licences would be granted.

The clause as amended was then agreed to.

THE EMPIRE ADVERTISING CLUB.

Mr. S. W. Goodey, publicity manager of the Associated Equipment Co., has, we are pleased to learn, been awarded the Empire Cup, which is presented each year to a member of the Publicity Club of London for a selected advertising task in connection with publicity work of the Empire Marketing Board. The subject this year was the writing of a paper on "Suggestions on how the retailer can help the Marketing Board." The cup carries with it a prize of £10 10s., and a cheque for this amount was presented with the cup to Mr. Goodey at the annual general meeting of the Publicity Club on May 12. As this award was open to competition by all members of the Club, many of whom are specialists in retail advertising, Mr. Goodey is to be congratulated upon the wide scope of his views, and his thorough grasp of the essentials of advertising.

Digitized by Google

OMNIBUS AND COACH SECTION

RETIREMENT OF MR. HENRY MOZLEY.

HIS SERVICES TO BURNLEY CORPORATION TRANSPORT.

Many testimonials of affection and esteem have been received by Mr. Henry Mozley since his retirement in March last from the position of general manager of the Burnley Corporation Tramways and Omnibuses. The last bestowed upon him was presented on behalf of the works department of the undertaking, and at the presentation ceremony on April 11, Mr. C. H. Stafford, the new general manager, presided over a large gathering.

Mr. F. S. Whitaker, rolling stock superintendent, who made the presentation, said that to have held the position of general manager for fifty years, as Mr. Mozley had done, was a notable achievement, and they were all proud of his record. On behalf of the works staff, he asked Mr. Mozley to accept a silver inkstand and calendar as a small indication of their esteem.

Mr. Mozley in expressing his thanks said that there was nothing more gratifying to a man than to know he had had the affection of the men with whom he had worked for two generations. To have had charge of one undertaking so long was unique, and to retire on good terms with so many of them gave him much pleasure. They had reason to be proud of their tramway and omnibus undertaking. Its success was generally recognised throughout the country, and it was the works staff, which was rarely seen or known by the public, which was the foundation of its greatness. They had by skill, ability, and care, splendidly maintained the rolling stock in the interests of the safety and comfort of those who used the cars and omnibuses.

Burnley's influence in the tramway industry had spread far beyond their area, and one or two improvements introduced in Burnley were now widely known throughout the tramway world. Burnley was the first authority to adopt protection of the motormen by the vestibule platforms. They had also discovered safety methods, and were the first undertaking to use soft grey iron for brake-blocks in the place of wood. The Board of Trade thought the wooden block was the proper material to use, but after a demonstration not a word was said about the advantages of wood. In 1902, to cope with their heavy gradients, the works staff evolved what had become known as the Burnley truck, six hundred of which were now running in Birmingham alone. He therefore could take pride in the achievement of the works staff. If they would give Mr. Stafford the same loyal support that they had always extended to him, he was sure Mr. Stafford would never regret having come to Burnley. Remarking that there were strenuous times ahead, Mr. Mozley regretted that he was not to be permitted to see them through. He would like to have seen the omnibus problem solved, but he would leave that little legacy to his successor.

It has already been recorded in these columns that the administrative staff of the undertaking presented Mr. Mozley with a reading lamp, and that the Tramways Committee had passed a resolution expressing great appreciation of his services as manager for the Corporation for twenty-nine years. Mr. Mozley's total service with transport undertakings amounts to sixty-two years. His administration was always characterised by energy and foresight, and he early anticipated the success of the motor omnibus. He was one of the founders of the Municipal Tramways and Transport Association, and its president in 1916–17. For many years he has been a member of the Council of the Association. In recognition of his exceptionally important services to the Association and the tramways and transport industry, the Council on April 11 elected him to honorary membership.

BRITISH OMNIBUS FOR SWEDEN.

The Associated Equipment Co., Ltd., has sent a 95 H.P. six-cylinder "Regent" omnibus to Sweden. It is similar to the new vehicles of the L.G.O.C., with wide entrance and platform, staircase at the side, diffused lighting, etc. It is being used by the Nordiska-Kompaniet—owners of the largest stores in Scandinavia—for taking visitors from the Stockholm Stores to the Arts and Crafts Exhibition.

MOTOR-COACH STATION AT BRISTOL.—The Bristol Tramways and Carriage Co. and the Bristol Greyhound Co. propose to erect a motor-coach station in Prince Street, Bristol, which will be provided with all facilities for the convenience of travellers, particularly those using long-distance coaches from London, Liverpool, Torquay, Bournemouth, etc.

COST OF ROAD TRAFFIC ADMINISTRATION.

A Parliamentary paper gives an estimate of the cost of the Administration of the Road Traffic Bill if it becomes law. The amount is given as £165,000 a year, and it will be paid out of the Road Fund. Against this expenditure, fees for the grant of licences and the issue of certificates of fitness will be paid into the Road Fund.

Great Britain is to be divided into twelve traffic areas and traffic commissioners are to be appointed for the co-ordination of all forms of passenger transport services by road in their areas.

There will be three traffic commissioners in each area, one of whom will be a full-time salaried officer appointed by the Minister of Transport, and will act as chairman. Public service vehicle examiners and certifying officers are also to be appointed.

It will be recalled that three years ago Mr. Churchill, then Chancellor of the Exchequer, announced his intention of abolishing the Ministry of Transport and retaining only the Roads Department. He estimated a saving of £134,293. Since then there has been an increase in every department. In the Secretarial Department the expenditure has increased from £23,250 in 1927 to £25,110 in 1929, and the personnel from 32 to 42. The Finance and Statistics Department has increased over the same period from £30,268 to £43,077, and the personnel from 46 to 110. Other figures are: Roads Department, £23,885 increased to £31,853, personnel from 31 to 76. Divisional Staff, £32,132 to £46,893. Personnel 61 to 110. London Traffic Staff, £14,701 to £16,043, personnel from 46 to 51.

THE PARK ROYAL COACHWORKS.

PARK ROYAL COACHWORKS, LTD., which has recently been registered, has been formed to take over the coach-building business of Hall, Lewis & Co., Ltd. (in voluntary liquidation). It will carry on the business of building the same high quality passenger bodies, and there will be no change in the management.

Mr. A. T. Froggatt and Mr. B. Homfray Davies have joined the board. The other directors are Messrs. H. Yager, R. Dunsmore, W. S. Grossmith, and S. Yager.

LANCASHIRE & CHESHIRE TRANSPORT COUNCIL.

The Council met in Manchester on May 3. The meeting was private, but it is understood that the Road Traffic Bill was discussed. Alderman W. Greenwood, chairman of Salford Tramways Committee, was elected chairman, and Mr. W. E. Turner, chairman of the Bury Tramways Committee, vice-chairman. Mr. J. Barnard, general manager, Bolton Transport Committee, is secretary. The Council represents thirty-three municipal authorities operating tramway and omnibus systems in Lancashire and Cheshire. Meetings are held whenever circumstances require. The Council deliberates and makes recommendations to the Municipal Tramways and Transport Association, or to municipal authorities concerned in the case of local matters.

MUNICIPAL TRANSPORT HIRE.—A special committee has been appointed by Sheffield Corporation to consider and to report to the Council on the question of transport hire by various departments of the Corporation, and especially as to the advisability of establishing a central haulage department.

LOCAL AUTHORITIES AND NEW OMNIBUS ROUTES.—The Metropolitan Boroughs Standing Joint Committee has asked for a clause to be inserted in the Road Traffic Bill for the licensing authority to obtain and take into consideration the views of the Metropolitan Borough Councils whose roads will be traversed by omnibuses licensed to run upon any new route. The Minister of Transport has replied that the request will be considered if and when fresh legislation dealing with London traffic is introduced. The Committee recommends that pressure be brought to bear to secure the insertion of a clause.

MOTORING OFFENCES IN THE METROPOLITAN AREA.—In a statement issued by the Home Secretary it is disclosed that in 1929 the Metropolitan Police reported 2,525 cases of alleged dangerous driving. Proceedings were taken in 1,935 cases, with the result that 1,412 convictions were obtained, 341 summonses were dismissed, and 182 withdrawn. The procedure of issuing first warnings for minor offences is still being followed. Since July, 1928, 24,643 such warnings have been issued. Fines for motoring offences during the year ended June 30, 1929, totalled £65,673.

Digitized by Google

OMNIBUS AND COACH SECTION

OMNIBUS AND COACH SERVICES.

MUNICIPAL.

A Garage Extension.—Merthyr Omnibus Committee has given instructions for the preparation of plans for an extension of their omnibus garage.

All-Night Service Withdrawn.—Edinburgh Transport Department has withdrawn the all-night omnibus service that was run during the winter.

Service to a Hull Garden Village.—Hull Watch Committee has granted licences to the Tramways department to run omnibuses on Gills Hill Road, in order to extend the present service to the garden village.

A Dundee Circular Trip.—An attractive circular tour of Dundee by omnibus has been organised by the Tramways department. The journey occupies one-and-a-quarter hours, and the fare is one shilling.

Omnibuses in Place of Inter-Urban Tramcars.—The tramway service on the through route which links Rawtenstall with Haslingden and Accrington was withdrawn on April 29. The route is six miles in length, and omnibuses now provide the service.

Heavy-Oil Engine Omnibus for Walsall.—On the recommendation of Mr. W. Vane Morland, general manager Walsall Corporation Tramways and Omnibuses, the Tramways Committee has decided to purchase a double-deck top-covered omnibus fitted with a heavy-oil engine. In Sheffield a similar vehicle is being run at a cost of ½d. a mile, as against a fraction under 2d. per mile for petrol omnibuses in Walsall.

Emergency Exit on Double-Deck Omnibuses.—Bolton Tramways Committee has considered a report on the regulation proposed to be made by the Minister of Transport requiring an emergency exit on double-deck omnibuses fitted with totally-enclosed staircases. The Committee has decided that their new omnibuses on order be fitted with open staircases, and the builders, Leyland Motors, Ltd., have agreed to a reduction of price.

Difficulty in Starting Engines.—Mr. T. H. Thomson, superintendent of Merthyr Omnibus department, recently reported that there had been some difficulty in starting-up the omnibuses. Before a new contract for petrol was decided upon he suggested that for a month three other brands should be tested to ascertain if an economy could be effected in consumption and less trouble given in starting. Although the combine petrol was ¾d. dearer per gallon it might be possible by test to effect a saving.

Bournemouth Omnibus Extensions.—Mr. A. R. Fearnley, whose services had been engaged by the Council in connection with the Bournemouth Corporation Bill, has advised that, if suitable terms could be arranged, it would be desirable to acquire the undertaking of the Hants and Dorset Motor Services, Ltd., so far as concerns services operating within the borough and the added areas between Bournemouth and Christchurch. The Tramways Committee has authorised the Council's representatives, with Mr. Fearnley, to negotiate for the proposed purchase.

Rotherham's Fear of the Railways.—In addressing a meeting of the Rotherham and District Chamber of Trade, Alderman G. Caine, chairman of Rotherham Tramways Committee, admitted that the Corporation were still holding the railway companies at arms' length, as it was feared that if the companies took over any routes their action would be in the interests of the shareholders and not of Rotherham. The Corporation also had the public convenience and safety of the road to consider. In Halifax, his native town, the omnibuses had to queue, and the traffic was an absolute nightmare.

New Garage at Manchester.—At a cost of £32,500 an extension of the Princess Road tramways depot has been made in order to accommodate between sixty and seventy omnibuses. It was opened on April 15 by Councillor Meachin, chairman of the Works Committee of Manchester Transport Department, who mentioned that they now had 198 omnibuses which last year carried 24½ million passengers. Tramways must, he believed, eventually disappear from Manchester. Mr. Stuart Pilcher, the general manager, announced that in the first week of the substitution of omnibuses for the single-deck cars to Stretford Road the revenue was increased by 1½d. per mile.

A Newcastle Agreement.—A settlement was arrived at on April 17 in connection with the objection of the L.N.E.R. and the Tynemouth and District Traction Co. to the application of Newcastle Corporation for licences to operate omnibuses to Wallsend in conjunction with the Tyneside Tramways and Tramroad Co. In consideration of the Corporation issuing nineteen licences to the Tynemouth Co. to maintain a half-hourly service through the city, the objection was withdrawn. There will now be no opposition to the Council's proposal to operate omnibuses on two routes to North Shields. The Tyneside Co. has replaced their tramways with motor omnibuses.

Walsall Omnibus Plans.—In connection with the granting of powers to Walsall Corporation to purchase compulsorily the tramway routes from Walsall to Wednesbury and Darlaston, and to substitute motor omnibuses for the tramways, it is of interest to note that the route mileage of the Corporation omnibuses is 210 miles. There are about nine miles of single tramway track. Mr. W. Vane Morland, the general manager, has stated that from a commercial point of view it would be impossible to construct new tramways, and he estimated the cost of a new omnibus fleet at £39,172. He anticipated there would be an annual surplus of £4,261, and with that sum it would be possible to create a sinking fund on a commercial basis.

COMPANY.

Western Welsh Station Extension.—It is understood that the Western Welsh Omnibus Co. will proceed at once with the extension of the omnibus station at Bridgend.

A Middlesbrough Purchase.—The extensive services of the Charltonian Bus Co. in the Middlesbrough district have been acquired by Smith's Safety Services, of Middlesbrough.

A Bristol Acquisition.—Bristol Tramways and Carriage Company have acquired, in conjunction with the Midland Red Omnibus Co., the extensive business of Black and White Motorways.

Result of Two Welsh Appeals.—The Ministry of Transport, after local inquiries, has directed Risca Urban Council and Abercarn Urban Council to issue omnibus licences to Mr. T. R. Jenkins and the Western Services, Ltd., respectively.

Central Station for West Hartlepool.—In order to meet the convenience of the large number of people from adjoining places who visit West Hartlepool by omnibus, the Corporation proposes to erect a central omnibus station.

Summer Traffic to Bridlington.—Yorkshire and Lancashire coach owners have applied to Bridlington Watch Committee for licences for 250 vehicles. The Yorkshire (Woollen District) Electric Tramways Co. has asked for nine licences for a service from Manchester.

London Store Provides Coach Facilities.—James Shoolbred & Co., Ltd., the old-established London store, has formed Provincial Coaches, Ltd., to act as booking agents to coach operators of good standing. Accommodation for coaches and passengers is provided at University Street, Tottenham Court Road, and at the Stores' restaurant.

Omnibuses for Colwyn Bay.—The Llandudno and Colwyn Bay Electric Railway Co. has offered to abandon and ultimately remove the tramways between the centre of Colwyn Bay and the terminus at Old Colwyn on certain conditions. One is that a number of omnibus licences be granted to the company, who propose to enter into an arrangement with owners now operating over the route.

Scottish Merger with the Railways.—The Omnibus By-Laws Committee of Fife County has been informed that the Scottish Motor Traction Co., Ltd., on behalf of W. Alexander & Sons, Falkirk, has acquired the following undertakings:—Scottish General Omnibus Co.; the omnibus sections of Dunfermline and District Traction Co., and Wemyss and District Tramways Co., the General Motor Carrying Co.; and A. & R. Motor Services (Buckhaven). The foregoing concerns are now associated with Simpson & Forrester, Ltd., Dunfermline, and with the railway companies. It is intended to open an omnibus station at Cupar.

Northern Ireland Omnibus Services.—Belfast Omnibus Company has concluded arrangements whereby the L.M.S. Railway Co. has acquired eleven of the principal services from Belfast to various towns in Northern Ireland. The sale includes the vehicles operating in that area, and representing about 25 per cent. of the company's fleet. The railway company began the operation of the services on April 14. The amount involved in the transaction is reported to be £100,000. The railway company has also acquired the McNeilly service from Belfast to various outlying places, and Agnew's service from Ballymena to Randallstown. These three

Digitized by Google

OMNIBUS AND COACH SECTION

services include 25 additional omnibuses. The L.M.S. Railway has since ordered new omnibuses to the value of £35,000.

THE LICENSING OF GLASGOW OMNIBUSES.—If certain decisions reached by the magistrates of Glasgow Corporation are put into operation the city will have a monopoly of road passenger transport. The proposals would prevent private omnibuses picking up passengers who are to be set down again within the city boundary, and would practically abolish recognised stances for omnibuses. When the magistrates met on April 28 as a licensing authority to consider applications, the clerk announced that they were prepared to reconsider the question of stances and any consequent alteration necessary on the routes and stopping places. Mr. Muir Wilson, speaking for a group of private owners, asked that the whole matter be continued for three weeks to give them time to consider the position. There would be an appeal to a higher Court in connection with the new rules about taking up and setting down passengers. The magistrates agreed to three weeks' delay.

LONG-DISTANCE.

INCREASED BUSINESS AT BOURNEMOUTH.—Twenty-six licences for coaches to be used for existing services have been granted to Elliott Bros.

CAMBRIDGE-LONDON SERVICES.—Five additional licences on this route have been granted to Westminster Coaching Services, Ltd., by Cambridge Watch Committee.

LONDON-GUILDFORD REFUSALS.—Guildford Watch Committee has refused applications by the London General Omnibus Co. and the Premier Omnibus Co. (London), for licences to operate between Guildford and London.

EDINBURGH-NEWCASTLE-LONDON SERVICE.—United Automobile Services, Ltd., have started a service between Newcastle and Edinburgh which will connect at Newcastle with the London coaches of Orange Bros. The London-Edinburgh single fare is 30s., the return being 52s. 6d.

A RAILWAY APPLICATION.—Sheffield Corporation has granted licences to the London, Midland and Scottish and London & North Eastern Railways to run omnibuses from Sheffield to London, and Sheffield to Manchester and Blackpool. Mr. E. Warriner has been given permission to provide a Sheffield-Blackpool service.

DAIMLERS ON LONDON-BOURNEMOUTH SERVICE.—The Golden West Line, Ltd., 40, Russell Square, London, have inaugurated three services a day between Bush House, Aldwych, and the new coach station at Christchurch Road, Bournemouth. Daimler CF6 chassis are used, with bodies by Messrs. Thurgood, of Ware.

NEW LONDON-LIVERPOOL SERVICE.—Miss E. Wilkinson, M.P., on April 16 inaugurated the Merseyside Touring Co.'s new service between London and Liverpool. Tilling-Stevens "Express" coaches for 26 passengers are being used, and the fares are 15s. single and 27s. 6d. return. Coaches start from Bush House, Aldwych, the Liverpool headquarters being at 30, Islington.

A MINIMUM FARE COMPLAINED OF.—A Ministry of Transport inquiry was held at Birmingham on April 14 into an appeal by the Barton Transport Company, of Nottingham, against a condition imposed by Birmingham Corporation for a licence to ply for hire in the city. The company ran an omnibus between Birmingham and Nottingham, and an application for a licence was granted with the condition that a minimum fare of 2s. 6d. should be charged. This fare, it was urged, was ridiculously high. A minimum charge of 7d. for vehicles leaving Birmingham, would, the company contended, be a sufficient safeguard against competition with the Corporation omnibuses. A decision will be announced later.

POPULARITY OF A 12½-HOUR JOURNEY.—An appeal was heard at Swansea by Mr. T. J. A. Atkinson, K.C., for the Ministry of Transport, against the refusal of the Corporation to grant licences to the Great Western Express Co. for a Swansea-London service. The service is an extension of the London-Cardiff service, which provides three trips each way. Mr. Atkinson asked if the service was popular as the journey took 12½ hours. Evidence was given to prove the popularity of the service.

RAILWAY REQUEST REFUSED AT BOLTON.—The Watch Committee recently received a letter from the chief superintendent (passenger commercial) of the London Midland and Scottish Railway, intimating that Underwood Express Services, Ltd., had been acquired by the L.M.S. and L.N.E. Companies. The company stated that Messrs. Underwood had been running a service from Sheffield to Blackpool, via Bolton, and they asked for permission to take up and set down passengers in the borough on such service. The application was refused.

MOTOR TRAFFIC NOTES.

SCOTTISH MOTOR EXHIBITION.—The twenty-ninth annual Scottish Motor Exhibition will be held on November 7 to 15 in the Kelvin Hall, Glasgow.

EXETER TO BE BY-PASSED.—At an estimated cost of £185,000 Devonshire County Council is to construct a by-pass to Exeter. The Ministry of Transport will pay £148,000 of the cost.

THE CENTRAL LONDON TRAFFIC RESTRICTIONS.—The London Traffic Regulations, 1930, under which restrictions are imposed upon vehicles waiting in the scheduled area, are to be tried for a period of six months.

A GRANT FOR AUTOMATIC SIGNALS.—The Ministry of Transport has announced that a grant of 60 per cent. of the cost will be made for automatic signal installations. The Ministry recommend that British manufactures should be used.

AUTOMATIC SIGNALS PREVENT ACCIDENTS.—Leeds police have reported to the local Safety First Council that since the installation of automatic traffic signals in Leeds there have been fewer accidents at those places than when the police were on point duty.

NEW ENGLISH CHANNEL FERRY SERVICE.—In order to provide unbroken transport for coaches, cars and lorries with their respective loads, Townsend Bros. Ferries, Ltd., have placed a steamboat of 880 tons on the Dover-Calais route for the transit of such vehicles. Comfortable provision is made for passengers.

THE POLICE AND TRAFFIC NOISE.—Replying to a question in Parliament, the Home Secretary said that the Metropolitan Police had no instrument by which they could ascertain when the noise of vehicles was excessive. An instrument had been subjected to certain tests, but as yet without satisfactory results.

MERGING OF LONDON AMBULANCE SERVICES.—As a result of the work of the Boards of Guardians and the Metropolitan Asylums Board having been taken over by the London County Council, the ambulance services of the late authorities have been merged with the accident ambulance service of the Council. The service is under the control of the Fire Brigade Committee.

NEW THORNYCROFT DEPOT AT CARDIFF.—On April 30, Sir John E. Thornycroft opened at Cardiff a Western sales and service depot of John I. Thornycroft, Ltd. Sir John mentioned that the new building was the last of a chain of Thornycroft depots, the others being in London, Birmingham, Glasgow, Leeds, Manchester and Newcastle. At each depot users of vehicles made at the Basingstoke works would obtain prompt and efficient service.

MAIN ROAD SIGN TO MOTOR DRIVERS.—The Ministry of Transport on April 14 issued a recommendation for a sign which is intended to give effect to the report of a special conference called by the Ministry. The sign comprises a red triangle, contained within a circle with a road junction sign underneath. It will indicate that a main road is being approached and that it is then the duty of the driver on the inferior class road to reduce speed or to stop, if necessary.

DESIGNS FOR PETROL STATIONS.—The Incorporated Association of Architects and Surveyors have started a competition to encourage the study and development of petrol stations planned to meet the requirements of distributors, but which may not detract from the beauty of the natural surroundings. Prizes ranging from 50 guineas will be offered, and the competition is open to British architects throughout the world. The inclusion of signs in the designs will be compulsory.

REFLECTOR WARNING SIGNS.—The Automobile Association, with the approval of the Postmaster-General, is fixing 500 reflex signs on telegraph poles at bends and curves on the London to Holyhead road. These signs are to assist drivers in keeping a safe course on the roadway after dark or in misty weather, and consist of a replica of the A.A. badge, studded with reflectors, which, picked up by the lights of approaching cars, show red on the near-side and white on the off-side.

REGISTRATION OF FOREIGN MOTOR VEHICLES.—London County Council has taken over from the Commissioner of Police the duties involved in the administration of the Road Vehicles (International Circulation Permits) Regulations. The work comprises the registration of all motor vehicles temporarily imported into Great Britain under foreign identification marks, but licensed in the ordinary way, and dealing with incidental inquiries. The expenditure involved is recoverable from the Ministry of Transport.

TRAFFIC CONTROL AT SHEFFIELD.—A special committee of Sheffield Town Council has been inquiring into control of traffic in the

Digitized by Google

OMNIBUS AND COACH SECTION

centre of the city. The chief constable, the city engineer, and the general manager of the transport department have all made recommendations which have been adopted by the Watch Committee for a trial period. The recommendations include alterations in the arrangement of tramcar loading stations, making certain streets one-way for all traffic proceeding to the city except tramcars, and the erection of refuges, etc.

HEADROOM IN MOTOR COACHES.—The Commissioner of the Metropolitan Police has issued a notice directing attention to the fact that the official requirements laid down for the minimum inside headroom of public service vehicles fitted with permanent tops apply also to vehicles fitted with roofs comprising a combination of the permanent and sliding types. The requirements are as follow :—Vehicles with seating capacity not exceeding 20, minimum headroom 5 ft. 3 in. ; vehicles with seating capacity exceeding 20, minimum headroom, 5 ft. 10 in.

MOTOR VEHICLE NUMBER PLATES.—The Minister of Transport announces that on October 6 next new regulations dealing with motor vehicle number plates will come into operation. As regards motor vehicles generally, the new regulations provide that when a back number plate is illuminated by transparency or translucency, the letters and figures of the identification mark may show either white or red, and if they appear red, a separate rear red light is not required. During daylight the identification mark must show white against a black background.

NEW CARS FOR THE LONDON COUNTY COUNCIL.—Additional motor cars are required by the London County Council in order to cope with the work entailed by taking over the duties of the Metropolitan Asylums Board and the Boards of Guardians. At present six cars are to be provided at a cost not exceeding £1,800. The estimated cost of running each vehicle is £350 per annum. Instructions have been given to all heads of departments to report before the summer recess as to the permanent requirements of each department and the purposes for which each car will be required.

INDICATION OF ORIGIN OF MOTOR VEHICLES.—A Standing Committee appointed by the Board of Trade under the Merchandise Marks Act, 1926, is holding inquiries as to whether various imported goods should bear an indication of origin. Among the goods in regard to which an inquiry will be held at a date yet to be fixed are motor vehicles, internal-combustion engines, chassis parts or fittings, magnetos, batteries and ignition plugs. Communications on the subject should be addressed to Mr. E. W. Reardon, Board of Trade Offices, Great George Street, London, S.W.1.

MOTOR CAR TO EFFECT A SAVING OF LABOUR.—The London County Council has decided to purchase a small motor car, at a cost of about £150, for use by the inspector who visits the seventy parks and open spaces where fees are paid. Considerable time is now spent in travelling to the parks and also in getting from one point to another in a large park or open space. The Establishment Committee estimate that the use of a car would increase the amount of inspection by 50 per cent., while the necessity of employing more than one inspector during the summer would be obviated.

"NORTHERN GENERAL" GARAGE.

The Northern General Transport Co., Ltd., some months ago completed their new garage and offices in Mile End Road, South Shields. The building, which is of brick with steel girders, has a span of 120 feet, and more than one hundred tons of steel were used in the construction. The concrete foundations and floor are reinforced with fabric supplied by the British Reinforced Concrete Engineering Co., Ltd. The building is equipped with an automatic petrol installation, said to be the first entirely automatic installation in the country. There are two pumps at the entrance to the garage capable of delivering 40 gallons per minute. A similar plant will be installed at the Winstone entrance when it is completed. An interesting feature of the opening ceremony was a procession of different types of the company's omnibuses from 1926 to 1930. Among those of the latter year the six-cylinder XL.SOS touring coach provides a high degree of luxury.

PRESTON CORPORATION has decided to apply for powers to convert the tramways into a trolley omnibus system. The first route to be dealt with would be that from Penwortham Old Bridge to Faringdon Park, a distance of nearly four miles. The cost would be about £27,000.

SOME RECENT ORDERS.

BERMONDSEY COUNCIL has purchased a 30-cwt. Dennis lorry for the electricity department.

LEYLAND MOTORS, LTD., have an order from Morecambe Council for a fire engine, at £1,750.

CROYDON EDUCATION COMMITTEE has recommended the purchase of two motor omnibuses at the cost of £2,800.

SWANSEA CORPORATION has purchased a low-loading refuse-collecting vehicle from Karrier Motors, Ltd.

COULSDON URBAN COUNCIL has accepted the tender of Dennis Bros., Ltd., for the provision of an ambulance vehicle at £978.

DERBY TRAMWAYS COMMITTEE has placed an order for a "Luchard" high-pressure air compressor for tyre inflation with the Equipment and Engineering Co., Ltd.

THE EQUIPMENT AND ENGINEERING CO., LTD., have an order from Ashton-under-Lyne Tramways and Motors for an H.8 "Luchard" air compressor for inflating giant pneumatics.

HULL CORPORATION has accepted the tender of Dennis Bros., Ltd., for a motor fire engine at £1,350 ; two motor trailer pumps at £280 ; and a motor utility wagon chassis at £442.

LIVERPOOL TRAMWAYS COMMITTEE has recommended acceptance of the tender of the Vulcan Motor & Engineering Co., Southport, for the supply of ten four-wheel chassis for single-deck omnibuses.

YORK TRAMWAYS COMMITTEE has recommended acceptance of the tenders of Crossley Motors, Ltd., for the supply of six omnibus chassis at £795 each, and C. H. Rowe, Ltd., for six omnibus bodies at £475 each.

AIRVAC VENTILATORS, of Darlington, have a contract for 108 type RM Airvacs with chromium-plated interior fittings, for installation on the inter-urban omnibuses of the Provincial Transport Co., of Montreal, which has standardised Airvac products.

THE ASSOCIATED EQUIPMENT CO. has received the following orders :—Halifax Corporation, two "Regent" omnibuses ; West Bridgeford Urban Council, two "Regent" omnibuses ; Colchester Corporation, one 32-seat, saloon omnibus body, £480.

THE ENGLISH ELECTRIC CO., LTD., has an order from Ashton-under-Lyne Corporation Tramways for six single-deck petrol omnibus bodies, each to seat 31 passengers and arranged with rear entrance. The bodies will be on Leyland "Lion" chassis.

OIL INSTALLATIONS (1928) LTD., have installed a Hammond three-point, low-pressure, petrol metering plant at the Wakefield garage of the West Riding Automobile Co., Ltd. Two-point plants have been ordered for the company's Castleford garage, and the Plymouth garage of the Western National Omnibus Co.

BIRMINGHAM TRAMWAYS COMMITTEE has accepted the following tenders : Associated Equipment Co., Ltd., seventy-five double-deck omnibus chassis ; Guy Motors, Ltd., twenty single-deck omnibuses ; Vulcan Motor & Engineering Co., Ltd., thirty-five top-covered omnibus bodies and the mounting of the bodies upon chassis.

ALDERSHOT TRACTION CO. has obtained six new omnibuses from Dennis Bros., Ltd., of Guildford, and seven more are to follow. The colour scheme is apple green and cream. In the upper saloon all seats have been arranged in the centre with a gangway on either side. An electric light is placed over each seat. There is an emergency exit on the off-side near the driver.

STRACHANS (ACTON), LTD., of North Acton, London, W.3, have a contract for the bodywork for 13 double-deck omnibuses for the Aldershot and District Traction Co., Ltd. The bodies are being mounted on Dennis chassis. Messrs. Strachans are also supplying twelve 32-seat single-deck bodies on Dennis E.V. chassis for the Aldershot and District Traction Co.

A LIVERPOOL CORPORATION ORDER.—In our issue of April 17 it was mentioned that Liverpool Corporation had purchased a "Prince" 32-seat chassis from the Vulcan Motor and Engineering Co., Ltd., at £750. This price was arrived at owing to the chassis having been supplied without tyre equipment and other items, which are included in the standard chassis.

SHEFFIELD TRAMWAYS COMMITTEE has recommended acceptance of the tender of Leyland Motors, Ltd., for fifteen double-deck omnibuses, subject to the company purchasing from the department twelve double-deck omnibuses not now required. The Committee has also accepted the tender of John Shaw & Sons (Salford), Ltd., for the supply of one hydraulic wheel press of 250 tons pressure, complete with electric motor, for £320.

Digitized by Google

THE
Tramway and Railway World

FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.

Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates:

FOR THE UNITED KINGDOM—Twenty-five shillings per annum.

FOR ALL PLACES ABROAD—Twenty-five shillings per annum. Postage to Canada, 6s.; to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS

LONDON, MAY 17, 1930.

NATIONAL SAFETY WEEK.

From Monday to Saturday next a new idea in the movement for the prevention of traffic and industrial accidents is to occupy attention. It takes the form of a National Safety Week, inaugurated on the first day by a meeting at the Mansion House, when the Lady Mayoress will present the gold medallions of the Safety First Association to London drivers who have completed ten consecutive years without accident. On the following morning 200,000 London school children will write "safety first" essays. In the evening, Lord Brentford, President of the National Association and Chairman of the Safety Week Council, will speak at Liverpool, where, on Wednesday, the Duke of York opens the annual Congress of the Association. Special activities have been planned in some twenty-seven centres where the Association has local committees; in other towns where the civic authority is a member of the Association there will be an effort to further its aims, either by a public meeting or in connection with the schools. Elsewhere there will be gatherings at industrial establishments which are members of the Association, or in co-operation with transport undertakings which enter their drivers for the annual Freedom from Accidents Competition. The foregoing particulars show that energetic minds have been at work in a useful effort to interest the nation as a whole in the prevention of accidents in the street and in the factory. The need is sadly evident, for about 7,000 people are killed on the roads yearly, while a slightly higher number lose their lives in industrial mishaps. In accidents of all descriptions about one million persons are injured. Further indication of the need in regard to the Metropolis is given by the publication this week of the number of traffic accidents during January, February, and March last. Deaths totalled 320, an average of over three a day. The injured numbered 11,441. An analysis of the deaths will show that it is possible to secure a considerable reduction. "Crossing the road without due care" is given as the cause of 111 fatalities, "faltering or hesitating" accounting for 28, and "passing in front or between stationary vehicles" for 16. Plainly the remedy is the training of the adult in the exercise of greater care in every possible way, including the exhibition of posters in public conveyances and by advertisements in newspapers. In the former task, transport undertakings may be of great assistance. The second enterprise could be managed by the National Association and its branches, provided increased financial support were forthcoming from local authorities and public-spirited individuals.

HEAVY MOTOR CAR AMENDMENT ORDER.

The Minister of Transport makes the following announcement:—Attention is drawn to the Heavy Motor Car (Amendment) Order, 1930, dated April 29, 1930, which comes into force on June 1 next. It had been found by manufacturers of public service vehicles of the double-decked type that it was difficult, without reducing seating capacity, to construct a vehicle of gross laden weight not exceeding nine tons embodying modern improvements desirable from the standpoint of efficiency and comfort. Such improvements include the fitting of pneumatic tyres, the provision of six-cylinder engines and four-wheel brakes, improved lighting equipment and heavier and more luxurious upholstery and internal fittings.

The new Order, which applies only to double-decked vehicles fitted with pneumatic tyres, permits a gross laden weight of 9½ tons and a maximum individual axle weight of 6 tons. The corresponding weights for single-decked vehicles or vehicles not fitted with pneumatic tyres remain at 9 tons and 5½ tons respectively.

The Order, the text of which was given in our issue of May 3, does not alter the existing permissible weights of six-wheeled vehicles.

THE GLASGOW TRANSPORT BILL.

The Select Committee of the House of Commons on May 14 approved the tramway and omnibus clauses of the Glasgow Corporation Bill in so far as to give the Corporation the monopoly of transport within the city, powers to run omnibuses on tramway routes outside the city, and general powers to abandon tramway routes. Protection outside the city was refused. The Bill has still to go before the House of Lords. The effect of the Committee's findings is as follows:—

The Corporation is given a virtual transport monopoly within the city and restricted powers to run omnibuses outside the boundaries on tramway routes.

In Glasgow itself they will be protected against competing private omnibuses, and for that purpose the city traffic area is extended to include both Renfrew and Rutherglen.

On other tramway routes they will be entitled to run omnibus services, but subject to licences being obtained from the appropriate authorities, and on these routes there will be no protection from competition.

In addition the Committee gave the Corporation general powers to abandon tramway routes, but on condition, as stated in the Bill, that such tramways, if abandoned, be superseded by services of omnibuses.

REVISED "ELEPHANT AND CASTLE" SCHEME.

A PROPOSAL BY THE MINISTRY OF TRANSPORT.

The Improvements Committee of the London County Council on Tuesday last recommended the Council to assent to a revision by the Ministry of Transport of the scheme which the Council adopted on February 11 for the improvement of traffic and architectural conditions at the "Elephant and Castle" junction of six South London roads. The Council's scheme provided for the construction of a circular road 120 ft. in width, with a carriage way of 87 ft. 6 ins., and the acquisition of property within a circle of 394 ft. radius. A double line of tramways was to be laid in the circular road, which would take the traffic on the existing double-track tramways on the six roads, as shown in an illustration in THE TRAMWAY AND RAILWAY WORLD of March 13. The whole of the traffic, vehicular and tramway, would be one-way traffic circulating round the road in a clockwise direction. The estimated cost of the project was £1,913,000, towards which the Ministry of Transport was to contribute 75 per cent.

Under the new scheme now submitted by the Minister of Transport there is to be a semi-circular road 120 ft. wide, with an external radius of 392 ft., based on the existing roadway joining Newington-causeway and Walworth-road and lying to the west of those streets, and a widening of Draper-street. The estimated cost is £1,950,000. While the Highways Committee preferred the new scheme, as it would allow of the simplification and shortening of the tramway route and reduce the number of additional pointsmen required, the Town Planning Committee expressed the opinion that it appeared to be quite inadequate to the needs of the general traffic and of pedestrians.

Stalybridge Watch Committee has granted four additional licences to the L.M. & S. Railway Co. for use on the Sheffield-Manchester and Sheffield-Blackpool services.

Digitized by Google

THE ROAD TRAFFIC BILL.

The Standing Committee of the House of Commons on the Road Traffic Bill met on Tuesday and discussed the powers to be conferred on the Traffic Commissioners for the granting of licences. A right of appeal to the Minister is given, in Clause 78, to any person aggrieved by the decisions of the Commissioners with reference to the refusal of road service licences.

Mr. Remer moved an amendment to provide that if there should be an appeal to courts of law against any order made by the Minister, the holder of the licence would be able to continue his service pending the decision of the court. Mr. Morrison, Minister of Transport, said the only grounds on which an aggrieved person could appeal to the courts were that the Minister had acted *ultra vires* or in bad faith, but that did not affect the administration of the Act. The proposed amendment was undesirable. The amendment was rejected by 20 votes to 9.

Lieut.-Colonel Ashley, on the question that the clause stand part of the Bill, said that the appeal to the Minister would be entirely "eyewash." In effect it would be an appeal from one set of officials to another, and the Minister would be dependent on the officials in his Department. The clause was agreed to.

Clause 79 provided that any holder of, or applicant for a licence to act as driver or conductor of a public service vehicle who felt aggrieved at the decision of the Commissioners could appeal to a petty sessions court, which would make orders that would be binding on the Commissioners.. Mr. Morrison stated that the right of appeal to petty sessions was a new concession, there having been hitherto no such right of appeal from the decision of the licensing authority. He said he would receive any representations that might be made to him on the point before the report stage, but he thought the position of the men was perfectly safeguarded. The clause was agreed to.

On Thursday the Committee considered Clause 88, which states that no right of continued benefit is to arise from the holding of a licence for road service vehicles. Lieut.-Col. Howard Bury moved the omission of sub-section 2 of this clause, which states that "in the event of any undertaking by which a service of public service vehicles is provided being purchased compulsorily by any local or public authority that part of the value of the undertaking attributable directly or indirectly to this Act shall not be taken into account." He considered this provision might be unfair to holders of public service vehicle licences who had gone ahead of the requirements of a district by running a service which was not at first remunerative, but became so as the neighbourhood developed. It would be possible for some local authority to take over the service when it had become remunerative. Sir J. Melville, Solicitor-General, said it was a misapprehension to suppose the sub-section conferred any power of compulsory purchase upon local authorities. The sub-section was intended to make it clear that the holder of a public service vehicle licence was not to receive the benefit of anything like a vested interest.

The proposed amendment was defeated by 15 votes to 14.

Mr. Remer then moved the omission of the word "indirectly" from the provision as to the part of the value of a road service undertaking that was attributable to the provisions of the Bill. He contended the use of the word "indirectly" would lead to confusion.

Mr. Morrison said that this part of the Bill was intended to establish regulated monopolies of road services, some of which would be public and some private. There need not be any fear that there would be an insufficient number of applicants for licences either in rural or urban areas. If that regulated monopoly were to be conceded then in the event of a local authority obtaining power to purchase compulsorily it was reasonable to lay it down that the monopoly granted by the Act should not be a factor in the purchase price. That was for the protection of the interests of the ratepayers. No injustice would be done to anyone. The sub-clause followed the precedent of the London Traffic Act, 1924, and also of the Tramways Act, 1870.

The amendment was rejected by 16 votes to 14.

The Committee adjourned until Tuesday.

PROTESTS BY MANCHESTER EMPLOYEES.

"SPEEDING UP" AND MEDICAL EXAMINATION.

At a mass meeting of tramways and omnibus employees of the Manchester Corporation on May 11, a resolution was passed relating to "speeding up," and another protesting against the decision of the Watch Committee to impose a medical test for drivers.

One speaker declared that the development of transport services based upon a general policy of speeding up could only have an adverse effect upon the conditions of workers in the industry. The resolution also instructed two officials to request that a national delegates' conference of the General Workers' Union should be called "for the purpose of considerably improving the national agreement or terminating the same, to the workers' advantage." Mr. T. Maclean, one of the Union's organisers, reported that a deputation had waited upon the general manager of Manchester Transport Department, who promised to consider any complaints that might be made as to undue speeding up of any of the routes.

The following resolution was unanimously passed: "This meeting strongly resents the policy of the Watch Committee with regard to the medical examination of drivers of public service vehicles. This policy can only react unjustly, and thus create a position we cannot accept. We are not averse from the careful selection of fit men, but we feel this ought only to be done by a carefully thought out plan considered by all the parties concerned. We must, therefore, at this stage declare that we will not accept the position set forth by the Watch Committee, and that we desire to meet them at an early date. Further, that we place all the facts before our national executive body and ask for plenary powers to deal with the situation."

MISCELLANEOUS NEWS AND NOTES.

The London United Tramways Co. is about to relay the .75 mile of track between Haydons-road and Tooting.

Yarmouth Council has decided to abandon the tramways to Gorleston next September and to substitute double-deck omnibuses.

The Scottish Tramways and Transport Conference, as previously announced, will be held on May 23-24 at the Atholl Palace Hotel, Pitlochry. The programme was given in our issue of May 3.

Seats for Car Crews.—Reading Tramways Committee have requested the general manager and engineer to report upon the question of providing seats on the platforms of tramcars for drivers and conductors.

The National Safety Congress will be held at Liverpool on Wednesday and Thursday next. Sir Henry Maybury will speak on "The Development of Roads and Road Transport with Special Reference to the Prevention of Accidents."

Free Passes for Councillors.—Birkenhead Town Council has approved the recommendation of the Tramways and Motors Committee to grant free passes on the Corporation's tramcars and motors to members of the Council.

Track Improvement at Coventry.—Coventry Corporation has authorised the tramways engineer and manager to proceed with the reconstruction and doubling of the tramway in the Burges as soon as the necessary arrangements can be made.

Tramwaymen's Holidays.—Luton Town Council has rejected the application by the tramway drivers and conductors for eight days' annual holiday with pay, instead of six. The men consider that, as they work thirteen days a fortnight, and all bank holidays, the existing holiday is inadequate.

Track Relaying at Oldham.—Representatives of the Tramways and Surveyors' Committees of Oldham Corporation will meet shortly to discuss what part of the cost of relaying of tramway tracks made necessary by the improvements at the Market-place, West-street and Rochdale-road shall be borne by the tramway department.

Street Accidents in Oxford.—During the quarter ended March 31 there were 60 street accidents in Oxford, including the added areas, resulting in 70 cases of personal injury, two of which were fatal. In the corresponding quarter of last year, but not including the added areas, there were 37 accidents, resulting in 43 cases of personal injury, one of which was fatal.

The Yorkshire Traction Co.'s Bill seeking powers to remove the tramway rails and to substitute motor-omnibus services for the existing tramways in Barnsley and District came before the Unopposed Bills Committee of the House of Commons on May 15 and was passed for third reading. The Bill has already passed through the House of Lords.

Russia in Need of Electrical Plant.—The Soviet Government has issued a licence for orders to be given to the English electrical industry. These orders, says the Moscow correspondent of the "Financial Times," are to be placed at the end of May, and amount to three million roubles. The Soviet Government also intends to order three turbines for Russian electrical works.

Trolley Omnibuses Proposed for London.—The Select Committee of the House of Lords has begun the consideration of the Bill of the London United Tramways, Ltd., which seeks power to abandon the tramway tracks on their forty-six miles of route and to substitute the trolley omnibus system. It was announced yesterday (Friday) that the local authorities had withdrawn their opposition.

The Passing of Stationary Tramcars.—Southport Watch Committee has received a letter from the secretary of the Transport and General Workers' Union, suggesting that a by-law be introduced making it an offence for motorists to pass a stationary tramcar other than on the off side. The Committee has, however, decided to take no action in the matter, as they considered that traffic would be held up too much if a hard and fast rule were enforced.

Delegates to the Warsaw Congress.—Glasgow Corporation has appointed Councillor Dollan, convener of the Transport Committee, and Bailie John Stevenson, sub-convener, to attend the Congress of the International Union of Tramways, Light Railways and Public Omnibuses, which takes place in Warsaw from June 29 to July 6. Mr. L. Mackinnon, general manager of the Transport Department, will also attend. The only other tramway undertaking in this country to be officially represented at the Congress will be Manchester Corporation Tramways.

Damages Against Belfast Tramways.—Damages amounting to £1,500 were awarded in the Northern Ireland King's Bench Division on May 8, in the case of a girl of 18, who, through her father, brought an action against Belfast Corporation for personal injuries sustained through the alleged negligence of their servants. For the plaintiff it was stated that, while she was on a car at Castle-place on June 29 last, a trolley wheel became detached and fell on her head. Her skull was fractured, and later she suffered from neurasthenia and shock, making her a physical and mental wreck. When the case was called Mr. W. Beatty, K.C., on behalf of the Corporation, announced that a settlement had been arranged, the defendants having agreed to a verdict against them for £1,500, with taxed costs.

Digitized by Google

The Future of Exeter Tramways.—Exeter Tramways Committee, faced with the cost of reconstructing the tramway track of the Alphington-road section, propose to abandon the tramcars and to substitute an omnibus service. The Committee propose to use experimentally a one-man omnibus. The Corporation has deferred a final decision until the desirability of using trolley omnibuses has been considered.

Fees for Licensing Service Vehicles.—Bradford Watch Committee has expressed the opinion that the sum received by the Council from the Road Fund as licensing fees for public service vehicles, seating 14 persons and upwards, should be increased to cover the expenditure incurred by the City Council in the mechanical inspection of such vehicles. The Town Clerk was instructed to request the local Members of Parliament to urge the Minister of Transport to take such steps as may be necessary to ensure that the sum received by the Council is increased.

New Manchester Tramcar.—Manchester Transport Committee on May 13 inspected a tramcar of a new type built by the Corporation which is gradually to replace the existing type. The car is mounted on a single truck and carries only 62 passengers instead of the 76 accommodated by the bogie car. The new car is, however, 2 inches wider than the older type, the additional width allowing for greater room between the seats, which in both saloons are upholstered. Provision is made for electric heating in the two saloons. The car is described as quieter, speedier and more easily controlled.

Dublin Omnibus Strike.—The strike of employees of the Irish Omnibus Co. continues, but a considerable number of omnibuses are now leaving Dublin for various centres. At the Company's offices it was stated recently that many applications had been received for the vacant positions. Approximately 100 drivers are involved in the strike, and about eighty new men are being tested. The Ministry of Industry and Commerce has communicated with both parties in regard to a settlement of the dispute. The National Union of Railwaymen has recognised the strike, which arose as a consequence of a revised scheme of wages and conditions. The company has declined to meet representatives of the Union.

PERSONAL.

Mr. T. Mensforth, works manager of Darlington Rolling Mills Co., has been appointed electrical engineer to Dorman Long & Co., Ltd.

Sir Hugo Hirst's " Diolite " proved an easy winner of the Two Thousand Guineas at Newmarket in a record field of twenty-eight runners.

Mr. R. W. Hughman, managing director of the " Electrical Times," has, we are glad to learn, entirely recovered from his recent operation.

Mr. Cherry, general foreman at the Rotherham Corporation Tramways depot, has been appointed, on twelve month's probation, as rolling stock superintendent at a salary of £300 per annum.

Sir Philip Dawson, who received a cordial welcome at the annual general meeting of Johnson and Phillips, Ltd., electrical manufacturers, Charlton, of which he is a director, has quite recovered from his recent severe motor accident.

Mr. R. H. Campion, manager of the Torquay Tramways Co., Ltd., has been appointed a member of the Publicity Committee of the Corporation, as representing both the Torquay Tramways Co. and the Devon General Omnibus Co.

Mr. Cyril Dennis, of W. B. Dick & Co., Ltd., was a guest of the Rochdale Rotary Club on May 15, when he delivered an address on Russia. Mr. Dennis has addressed several other Rotary Clubs, giving impressions of Russia which he received on a visit to that country in the latter part of last year.

Mr. F. Bertram Galer has been appointed chairman of the Highways Committee of the London County Council, which is responsible for the operation of the tramways, in succession to Mr. C. W. Matthews, who has retired from the chairmanship after many years of valuable service to the Council in that capacity.

Mr. W. Shore, after forty years' connection with the Manchester Tramways, recently retired, and has been presented, on behalf of his colleagues, with a gold watch and chain. Councillor J. S. Hill, deputy chairman of the Tramways Committee, made the presentation. For thirteen years Mr. Shore was a driver of the horse tramcars, and during the last twenty-seven years he has been a driver in the wagon department.

Mr. S. W. Goodey, publicity manager of the Associated Equipment Co., has, we are pleased to learn, been awarded the Empire Cup, which is presented each year to a member of the Publicity Club of London for a selected advertising task in connection with publicity work of the Empire Marketing Board. The subject this year was the writing of a paper on " Suggestions on How the Retailer can Help the Marketing Board." The cup carries with it a prize of £10 10s., and a cheque for this amount was presented with the cup to Mr. Goodey at the annual general meeting of the Publicity Club on May 12. As this award was open to competition by all members of the Club, many of whom are specialists in retail advertising, Mr. Goodey is to be congratulated upon the wide scope of his views, and his thorough grasp of the essentials of advertising.

We regret to record the death of **Mr. William Gladstone Wylie,** which occurred at his residence in South Shields on May 12 after a long illness. He was chairman of the Tramways Committee from its inception in 1906 until his retirement from the Council in 1927, and took a great interest in tramway affairs of which he had an extensive knowledge. For several years he acted as chairman of the Joint National Council for the Tramway Industry.

FINANCIAL.

Siemens Bros. & Co., Ltd.—A final dividend of 5 per cent. is announced, making 7½ per cent. for the year.

City of Buenos Aires Tramways.—The directors have declared a dividend of 1s. 3d. per share, which is at the rate of 5 per cent. per annum, less income tax for three months, ended March 31, 1930.

Madras Electric Tramways.—For the year 1929 there was a gross profit of £25,879. There is available £10,446, including £1,703 brought forward. The preference dividend requires £4,444, and the directors propose to carry the balance forward.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended May 14 amounted to £82,644, a decrease of £437 compared with the corresponding week of last year. The route length was 165.60 miles, as compared with 166.29 a year ago. From April 1 (the commencement of the financial year) to May 14 (6 2-7 weeks), the total receipts were £520,445, an increase of £787.

Municipal Transport Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended April 26 give total receipts of £429,584, or £27,302 more than in the corresponding week of last year. The aggregate receipts for four weeks amounted to £1,654,635, an increase of £65,352 over the corresponding period of last year.

Lowestoft Corporation Tramways.—The gross revenue for the year ended March 31 was £22,667. After meeting charges for interest and redemption of loans, but without providing for renewals, the surplus totals £676. The number of passengers was 3,486,967, and the cars ran 370,473 miles. Average traffic revenue per car mile was 13.75d., the average fare paid per passenger being 1.46d., and the average number of passengers per car mile nine.

British Electric Traction Co.—For the year ended March 31, 1930, the profits were £253,081, against £196,995 for the previous year, being an increase of £56,086. The directors recommend a cash dividend of 5 per cent., less tax, on the deferred ordinary stock, and a bonus of 10 per cent. in fully-paid £1 deferred ordinary shares, being at the same rate as last year. These distributions entitle the holders of the 6 per cent. cumulative participating preference stock to a further 1.89 per cent. (against 1.67 per cent.) by way of participating dividend, making 7.89 per cent. for the year ended March 31, 1930. A balance of £65,547 (against £14,025) is added to undivided profits account.

Imperial Tramways.—The shareholders of the Imperial Tramways Co., at a meeting at Bristol on May 12, resolved that the company should be wound up voluntarily. Shareholders will receive back all the capital, together with a substantial premium. Mr. Verdon Smith, the chairman, stated that all holdings in other companies had been realised, so that they could wind up, or launch out a new business, but the directors felt the shareholders would prefer the distribution of assets. When the company was formed 52 years ago its chief objects were to promote and construct tramways and to acquire holdings of capital in tramway undertakings. At various times the company had large interests in the Bristol, Middlesbrough and Stockton and other undertakings.

Luton Corporation Tramways.—The report for the year ended March 31, 1930, shows that the gross receipts amounted to £21,364. The operating expenses were £14,997, leaving a gross profit on working of £6,367; after meeting interest and sinking-fund charges there was a net surplus of £1,419. The total receipts per car mile averaged 17.62d. and the operating expenses 12.37d. The percentage of operating expenses to receipts 71.19. The miles run aggregated 290,989 and passengers carried 3,453,836, an average of 11.87 per car mile. The average car miles per day per car was 87.94. Other particulars are as follow: Traffic revenue per mile of track £3,368, operating expenses per passenger 1.04d., average fare per mile .72d., average distance covered by 1d. fare .63 miles, average speed per hour 6.08 miles. Power consumption totalled 487,975 units, an average of 1.68 units per car mile, the cost per unit being .804d.

CONTRACTS.

Leyland Motors, Ltd., have a contract to supply Worcestershire County Council with three 5-ton petrol lorries.

Portsmouth Tramways Committee has recommended acceptance of the tender of Hadfields, Ltd., for supplying trackwork.

East Ham Electricity Committee has accepted the tender of Enfield Cable Works for H.T. and L.T. feeder cables at £4,548.

British Insulated Cables, Ltd., are supplying two miles of trolley copper wire at £99 6s. 8d. per mile to Rotherham Transport Committee.

Bradford Corporation has accepted the tender of the English Electric Co., Ltd., at £27,000, for the supply of twelve double-deck trolley omnibuses.

The Roto Engineering Co., Ltd., of Bradford, are supplying five of the Corporation's motor omnibuses with " Refresher " ventilators at £10 10s. per vehicle.

Glasgow Transport Committee has accepted the tender of Stewart and Lloyds, Ltd., for the supply of tramway poles, and the tender of Reavell, Ltd., for the supply of an air-compressor.

Rotherham Tramways Committee has accepted the tenders of the Bristol Tramways and Carriage Co., Ltd., for five omnibus chassis, and of Messrs. Chas. H. Roe, Ltd., of Leeds, for five omnibus bodies.

Exeter Electricity Committee has accepted the following tenders: British Thomson-Houston Co., Ltd., 3,750 k.w. turbo-alternator, £12,838; Babcock & Wilcox, Ltd., two new boilers, etc., £9,880; Industrial Construction, Ltd., the foundation for new plant at £2,185.

Digitized by Google

Siemens Electric Lamps and Supplies, Ltd., have again received from the London County Council a contract to supply all types of electric lamps. This contract, which has been held by the same contractors for a number of years, ensures the supply of electric lamps to those institutions formerly controlled by the Metropolitan Asylums Board and the various boards not grouped in the London area.

British Omnibus for Sweden.—The Associated Equipment Co., Ltd., Southall, has sent a 95 h.p. six-cylinder "Regent" omnibus to Sweden. It is similar to the new vehicles of the London General Omnibus Co., with the staircase at the side, a wide entrance and platform, diffused lighting, etc. It is being used by the Nordiska Kompaniet—owners of the largest stores in Scandinavia—for taking visitors from the Stockholm stores to the Arts and Crafts Exhibition.

London County Council has accepted the following tenders for the supply of tramway rails and fish-plates: Dorman Long & Co., Ltd., £53,896 17s. 6d., and Frodingham Iron and Steel Co., Ltd., £7,232 10s.; 100 gear wheels, Metropolitan-Vickers Electrical Co., Ltd.; 100 pinions, Power Plant Co., Ltd.; electrodes, Quasi-Arc Co., Ltd., and Premier Electric Welding Co., Ltd.; mild steel shoe bars, Cargo Fleet Iron Co., Ltd., £4,800; rolled steel axle bars, S. Fox & Co., Ltd., £542; driving wheel centres, John Baker & Bessemer, Ltd., £1,100; plough collector gear, Estler Brothers, £3,538.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

Name.	Week ended	Latest Return. 1929	1930	+ or —	Aggregate. Wks	1930	+ or —
		£	£	£		£	£
Aberdare U.D.C.	May 13	574	539	— 35	6	3,563	+ 19
,, Motor Buses	,, 13	292	282	— 10	6	1,792	+ 147
,, Total	,, 13	866	821	— 45	6	5,355	+ 166
Aberdeen Corp.	,, 7	4,775	5,410	+ 635	49⅔	339,668	+ 19,183
Ashton-u-Lyne Corp.	,, 3	908	839	— 69	5	4,280	— 144
,, Motor Buses	,, 3	505	480	— 25	5	2,542	+ 86
,, Trolley Buses	,, 3	287	257	— 30	5	1,394	— 18
,, Total	,, 3	1,700	1,576	— 124	5	8,216	— 76
Ayr Corporation	,, 10	456	461	+ 5	51	29,040	+ 1,349
Barrow Corporation	,, 3	567	552	— 15	5	2,823	— 26
,, Motor Buses	,, 3	279	357	+ 78	5	1,849	+ 469
,, Total	,, 3	846	909	+ 63	5	4,672	+ 443
Belfast City	,, 9	11,147	11,570	+ 423	5⅓	64,439	+ 4,261
,, Motor Buses	,, 9	1,129	1,370	+ 241	5⅓	7,638	+ 1,746
,, Total	,, 9	12,276	12,940	+ 664	5⅓	72,077	+ 6,007
Birkenhead Corp.	,, 11	1,669	1,564	— 105	6	9,240	— 643
,, Motor Buses	,, 11	3,215	3,244	+ 29	6	19,671	+ 1,350
,, Total	,, 11	4,884	4,808	— 76	6	28,911	+ 707
Birmingham Corp.	,, 6	27,276	26,719	— 557	5	136,126	+ 2,550
,, Motor Buses	,, 6	12,345	15,166	+ 2,821	5	77,428	+ 17,532
,, Trolley Buses	,, 6	562	567	+ 5	5	2,891	+ 194
,, Total	,, 6	40,183	42,452	+ 2,269	5	216,445	+ 20,276
Blackburn Corp.	,, 7	1,938	1,856	— 82	5⅓	9,973	— 230
,, Motor Buses	,, 7	Nil	312	+ 312	5⅓	1,774	+ 1,774
,, Total	,, 7	1,938	2,168	+ 230	5⅓	11,747	+ 1,544
Bradford Corporation	,, 10	14,636	13,827	— 809	6	81,321	— 5,236
Brighton Corporation	,, 11	2,196	2,345	+ 149	5⅔	14,313	+ 1,053
Burnley Corporation	,, 10	3,034	2,856	— 178	---	...	...
,, Motor Buses	,, 10	625	663	+ 38	---	...	...
,, Total	,, 10	3,659	3,519	— 140	---	...	...
Burton-on-Trent Corp.	,, 11	801	860	+ 59	6	5,123	+ 2,639
Bury Corporation	,, 11	2,154	1,784	— 370	5⅔	10,917	— 1,952
,, Motor Buses	,, 11	362	1,028	+ 666	5⅔	6,224	+ 4,074
,, Total	,, 11	2,516	2,812	+ 296	5⅔	17,141	+ 2,122
Cardiff Corporation	,, 11	7,379	7,551	+ 172	5⅔	45,288	+ 2,904
Chatham and District	,, 8	994	1,109	+ 115	18	19,538	+ 1,186
Chester Corporation	,, 5	455	Nil	— 455	5	Nil	— 2,064
,, Motor Buses	,, 5	Nil	589	+ 589	5	3,032	+ 3,032
,, Total	,, 5	455	589	+ 134	5	3,032	+ 968
Chesterfield Corp.	,, 12	1,871	1,840	— 31	6	11,525	+ 689
Colchester Corp.	,, 14	523	548	+ 25	7	3,704	+ 442
Colne Corporation	,, 7	693	682	— 11	5	3,789	+ 117
Coventry Corporation	,, 11	2,136	2,024	— 112	6	12,533	— 294
,, Motor Buses	,, 11	1 548	1,804	+ 256	6	11,017	+ 1,851
,, Total	,, 11	3,684	3,828	+ 144	6	23,550	+ 1,557
Darlington Corp.	,, 10	964	1,041	+ 77	5⅚	6,203	+ 773
Derby Corporation	,, 10	2,404	2,424	+ 20	6	14,309	+ 120
,, Motor Buses	,, 10	633	915	+ 282	6	5,168	+ 1,571
,, Total	,, 10	3,037	3,339	+ 302	6	19.477	+ 1,691
Dover Corporation	,, 10	346	348	+ 2	6	2,186	+ 123
Dundee Corporation	,, 6	3,410	3,441	+ 31	50⅔	174,499	+ 6,107
East Ham Corp.	,, 10	2,326	2,355	+ 29	5⅔	13,353	+ 510
Edinburgh Corp.	,, 3	13,566	14,206	+ 640	50⅓	720,655	+ 28,747
,, Motor Buses	,, 3	3,194	3,446	+ 252	50⅓	175,514	+ 19,815
,, Total	,, 3	16,760	17,652	+ 892	50⅓	896,169	+ 48,562
Exeter Corporation	,, 14	851	808	— 43	7	5,172	— 309
Glasgow Corporation	,, 3	43,855	45,385	+ 1,530	48	2,130,086	+ 33,403
,, Motor Buses	,, 3	4,967	8,281	+ 3,314	48	315,513	+ 150,786
,, Total	,, 3	48,822	53,666	+ 4,844	48	2,445,599	+ 184,189
Gloucester Corp.	,, 7	496	685	+ 189	5⅔	3,698	+ 994
Grimsby Corporation	,, 10	1,324	1,479	+ 155	6	8,765	+ 1,344
Halifax Corporation	,, 6	4,420	4,967	+ 547	5⅓	26,506	+ 3,264
Huddersfield Corp.	,, 10	6,303	5,943	— 360	6	37,999	— 492
Hull Corporation	,, 10	6.178	5,946	— 232	6	34,284	+ 38
,, Motor Buses	,, 10	1,336	1,434	+ 98	6	8,246	+ 777
,, Total	,, 10	7,514	7,380	— 134	6	42,530	+ 815
Ilford Corporation	,, 10	1,473	1,525	+ 52	5⅔	8,739	+ 361
Ipswich Corp. Trol.Bus	,, 10	1,221	1,279	+ 59	5⅔	7,509	+ 594
Isle of Thanet	,, 7	466	489	+ 23	18⅓	7,412	— 22
Kilmarnock Corp.	,, 10	469	472	+ 3	51⅔	24,636	+ 1,837
Lancashire Un.	,, 4	2,314	2,108	— 206	17⅓	38,772	— 1,453
,, Motor Buses	,, 4	4,052	4,822	+ 770	17⅓	83,186	+ 13,556
Leeds Corporation	,, 10	19,644	19,716	+ 72	5⅓	113,900	+ 4,905
Leicester Corp.	,, 10	8,325	8,613	+ 288	6	48,451	+ 1,877
Lincoln Corp.	Apr. 27	923	1,068	+ 145	4	3,674	+ 89
Liverpool Corp.	May 10	29,719	30,150	+ 431	5⅔	172,801	+ 4,894
London County Coun.	,, 14	33,081	32,644	— 437	6⅓	520,445	+ 787
Luton Corporation	,, 7	374	426	+ 52	5⅓	2,374	+ 271
Maidstone Corp.	,, 8	195	Nil	— 195	5⅔	Nil	— 1,539
,, Motor Buses	,, 8	252	265	+ 13	5⅔	1,561	+ 9
,, Trolley Buses	,, 8	275	578	+ 303	5⅔	3,756	+ 2,000
,, Total	,, 8	722	843	+ 121	5⅔	5,317	+ 470
Manchester Corp.	,, 10	36,109	32,969	— 3,140	6	186,007	— 15,948
,, Motor Buses	,, 10	4,924	8,488	+ 3,564	6	47,903	+ 20,526
,, Total	,, 10	41,033	41,457	+ 424	6	233,910	+ 4,578
Middlesbrough Corp.	,, 6	1,209	1,141	— 68	5⅓	5,673	— 311
,, Motor Buses	,, 6	512	539	+ 27	5⅓	2,911	+ 357
,, Total	,, 6	1,721	1,680	— 41	5⅓	8,584	+ 46

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS—*Continued.*

Name.	Week ended	Latest Return. 1929	1930	+ or —	Aggregate. Wks.	1930	+ or -
		£	£	£		£	£
Newcastle-on-Ty.Corp.	May 10	9,402	8,578	— 824	5⅔	50,584	— 2,016
,, Motor Buses	,, 10	2,019	2,381	+ 362	5⅔	14,142	+ 3,326
,, Total	,, 10	11,421	10,959	— 462	5⅔	64,726	+ 1,310
Newport Corporation	,, 3	1,666	1,559	— 107	5	8,030	+ 338
,, Motor Buses	,, 3	772	831	+ 59	5	4,078	+ 675
,, Total	,, 3	2,438	2,390	— 48	5	12,108	+ 1,013
Northampton Corp.	,, 9	1,089	1,140	+ 51	5⅓	6,287	— 442
,, Motor Buses	,, 9	629	762	+ 133	5⅓	3,880	+ 857
,, Total	,, 9	1,718	1,902	+ 184	5⅓	10,167	+ 415
Nottingham Corp.	,, 8	6,263	5,796	— 467	5⅔	31,208	— 4,155
,, Motor Buses	,, 8	2,211	3,246	+ 1,035	5⅔	17,420	+ 5,276
,, Trolley Buses	,, 8	621	1,190	+ 569	5⅔	6,474	+ 3,203
,, Total	,, 8	9,095	10,232	+ 1,137	5⅔	55,102	+ 4,324
Oldham Corporation	,, 10	3,764	3,491	— 273	7	23,662	— 1,606
,, Motor Buses	,, 10	1,969	2,104	+ 135	7	13,958	— 92
,, Total	,, 10	5,733	5,595	— 138	7	37,620	— 1,788
Plymouth Corp.	,, 10	3,601	3,507	— 94	5⅔	21,288	+ 168
,, Motor Buses	,, 10	1,804	2,278	+ 474	5⅔	13,637	+ 2,988
,, Total	,, 10	5,405	5,785	+ 380	5⅔	34,925	+ 3,156
Portsmouth Corp.	,, 10	5,304	6,512	+ 1,208	6	41,113	+ 8,249
Preston Corporation	,, 7	1,750	1,650	— 100	5⅔	8,861	— 316
,, Motor Buses	,, 7	479	493	+ 14	5⅔	2,692	+ 174
,, Total	,, 7	2,229	2,143	— 86	5⅔	11,553	— 142
Rawtenstall Corp.	,, 11	918	655	— 263	5⅔	4,348	— 796
,, Motor Buses	,, 11	511	763	+ 252	5⅔	3,884	+ 824
,, Total	,, 11	1,429	1,418	— 11	5⅔	8,232	+ 28
Reading Corporation	,, 8	1,512	1,390	— 122	6	7,717	— 174
,, Motor Buses	,, 8	847	963	+ 116	6	5,282	+ 706
,, Total	,, 8	2,359	2,853	— 6	6	12,999	+ 532
Rochdale Corp.	,, 10	3,031	2,722	— 309	...	15,988	— 1,639
,, Motor Buses	,, 10	1,433	1,577	+ 144	---	9,548	+ 1,120
,, Total	,, 10	4,464	4,299	— 165	...	25,536	— 519
Rotherham Corp.	,, 12	2,572	2,647	+ 75	6	17,070	+ 1,571
Salford Corporation	,, 11	11,240	11,159	— 81	5⅔	66,465	+ 1,542
Sheffield Corp.	,, 11	20,737	20,573	— 164	5⅔	125,328	+ 2,622
Southampton Corp.	,, 7	3,138	3,383	+ 245	6	17,910	+ 1,039
,, Motor Buses	,, 7	613	887	+ 274	6	4,692	+ 1,310
,, Total	,, 7	3,751	4,270	+ 519	6	22,602	+ 2,349
Southend-on-Sea Corp.	,, 14	2,006	2,056	+ 50	6⅔	13,653	+ 554
Southport Corp.	,, 10	1,224	1,207	— 17	5⅔	7,359	+ 364
,, Motor Buses	,, 10	337	400	+ 63	5⅔	2,222	+ 419
,, Total	,, 10	1,561	1,607	+ 46	5⅔	9,581	+ 783
St. Helens Corp.	,, 6	1,931	1,953	+ 22	5⅓	10,564	+ 1,283
Sunderland Corp.	,, 13	2,269	2,319	+ 50	6	14,616	+ 722
,, Motor Buses	,, 13	126	451	+ 325	6	2,711	+ 2,585
,, Total	,, 13	2,395	2,770	+ 375	6	17,327	+ 3,307
Swindon Corp.	Apr. 30	590	974	+ 384	4⅔	4,213	+ 1,486
Wallasey Corp.	May 10	1,271	1,203	— 68	5⅔	6,958	— 202
,, Motor Buses	,, 10	1,808	2,186	+ 378	5⅔	12,295	+ 1,974
,, Total	,, 10	3,079	3,389	+ 310	5⅔	19,253	+ 1,772
Walsall Corporation	,, 4	3,293	3,434	+ 141	5	17,896	+ 1,036
Walthamstow Corp.	,, 10	2,298	2,492	+ 194	5⅔	14,090	+ 91
Warrington Corp.	,, 8	900	873	— 27	6	5,379	+ 67
,, Motor Buses	,, 8	450	479	+ 29	6	2,982	+ 354
,, Total	,, 8	1,350	1,352	+ 2	6	8,361	+ 421
West Ham Corp.	,, 8	5,948	6,165	+ 217	5⅔	33,653	+ 633
Wolverhampton Corp.							
Motor Buses	,, 4	2,728	2,354	— 374	5	12,201	— 1,749
,, Trolley Buses	,, 4	3,151	3,504	+ 353	5	17,702	+ 1,880
,, Total	,, 4	5,879	5,858	— 21	5	29,903	+ 131
York Corporation	,, 7	969	1,012	+ 43	6	5,380	+ 347
,, Motor Buses	,, 7	357	506	+ 149	6	2,660	+ 736
,, Trolley Buses	,, 7	64	Nil	— 64	6	Nil	— 208
,, Total	,, 7	1,390	1,518	+ 128	6	8,040	+ 875

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

Name.	Week or M'th.	Latest Return. 1929	1930	Aggregate. Wks. or *Ms.*	1930	In. or Dec.
Anglo-Argentine	May 13	£89,370	£83,365	19 w	£1,600,232	— £82,352
Brazilian Traction $	Mar.	3,928,550	4,047,036	3 m	11,707,823	+ 130,731
British Columbia $	Mar.	1,243,592	1,258,375	9 m	11,110,713	+ 567,360
Buenos Aires Lacroze	May 11	12,785	11,498	45 w	528,937	— 42,462
Burma E. Sup. Co. Rs.	Mar.	68,993	72,758	8 m	511,726	— 23,007
Calcutta ... Rs.	May 10	125,454	100,447	18½ w	2,206,854	— 217,498
Cape Town	Apr.	29,244	27,500	...	...	...
Carthagena & Herrerias	Apr.	1,063	905	4 m	4,545	+ 925
Durban	Mar.	24,442	23,662	8 m	190,536	+ 1,460
East India	Mar.	3,798	3,601	9 m	34,126	+ 571
Kalgoorlie	Feb.	1,433	1,437	2 m	2,981	— 73
Madras (2 weeks) Rs.	Apr. 30	40,038	43,344	16 w	371,903	+ 26,653
Para	Apr.	15,060	15,564	5 m	73,211	+ 785
Port Elizabeth ...	Apr.	7,877	7,521	...	...	...
Rangoon ... Rs.	Apr.	120,855	148,215	4 m	608,025	+ 134,789
Shanghai ... $	Apr.	336,624	308,840	4 m	1,372,562	+ 82,225
Singapore ... ...$	Apr.	131,000	137,000	7 m	935,000	+ 108,000
Winnipeg ... ...$	Mar.	572,492	571,157	3 m	1,767,705	+ 16,352

RAILWAY RECEIPTS.

19th Week ended May 11th	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week.	Inc. or Dec. to Date.
G.W.R.	217,000	Nil	331,000	— 26,000	548,000	— 26,000	— 245,000
L.M.S.R.	462,000	— 21,000	794 000	— 77,000	1,256,000	— 98,000	— 830,000
L.N.E.R.	316,000	— 3,000	643,000	— 57,000	959,000	— 60,000	— 312,000
S.R.	294,000	+ 6,000	104,000	— 5,000	398,000	+ 1,000	— 20,000
Totals	1,289,000	— 18,000	1,872,000	— 165,000	3,161,000	— 183 000	—1,407,000

ELECTRIC RAILWAYS.

Name.	Week Ended.	Latest Return. 1929.	1930.	+ or —	Aggregate. 1930.	+ or —
London Underground Common Fund Cos.	May 10	286,500	310,000	+ 23,500	5,570,400	+ 432,200
Lond. & Sub. Group	,, 10	41,400	45,500	+ 4,100	807,200	+ 78,100
Metropolitan Railway	,, 10	35,200	36,200	+ 1,000	695,300	+ 22,200
Liverpool Overhead	,, 11	1,614	1,536	— 78	28,418	— 1,303
Mersey Railway ...	,, 10	4,490	4,548	+ 58	89,577	+ 2,567

Digitized by Google

THE
Tramway AND Railway World

FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.
Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates:

FOR THE UNITED KINGDOM—Twenty-five shillings per annum.
FOR ALL PLACES ABROAD—Twenty-five shillings per annum. Postage to Canada, 6s.; to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS

LONDON, MAY 24, 1930.

THE ROAD TRAFFIC BILL.

Satisfactory progress is being made with the consideration of the Road Traffic Bill by a Committee of the House of Commons, and it should return to the House in good time for second reading. If the Minister of Transport has his way it will contain Part V, which was deleted by the House of Lords. In no uncertain manner the Commons has indicated its approval of the restoration by giving a reading to the Omnibuses Bill introduced for the purpose of placing municipally-owned omnibus undertakings upon an equality with those operated by private owners. No apprehension need therefore be felt as to the attitude of the Lower House to the challenge of the Lords. In its other aspects few changes are being made in the Road Traffic Bill as received from the Lords. The keener partisanship of the House of Commons Committee has led to a few "breezes" that were altogether absent from the other House, but these little scenes have not deterred the Committee from doing their utmost towards giving the country the legislation that is so much needed. These differences are only to be expected, and there is no necessity for one party to go to a political meeting and accuse the other of obstruction. What all the members of the Committee have to realise is that they are engaged in formulating reasonable legislation in place of a Motor Car Act that has failed to meet the needs of the age during the greater part of its twenty-seven years' existence. Added to that advance there is to be an abolition of ancient statutes that are ineffective for controlling the licensing and operation of public service vehicles. A third object is to set up a code of conduct for pedestrians and drivers that should ultimately help to reduce the terrible sacrifice of life and limb in road accidents. The sooner these important proposals become law, the sooner will knowledge be gained of the directions in which amendments may be necessary. This is especially important in relation to the provisions that concern the public passenger business. One difficulty that may be manifest is that where a service is to traverse more than one traffic area the Commissioners of other areas than the first may refuse to "back" the licence or may impose any conditions they think fit. No co-ordinating authority has been set up to view the traffic needs of the country as a whole or to regulate inter-regional traffic. As Dr. Fenelon remarked in his address to the Conference of the Scottish Tramways and Transport Association, it is necessary that there should be some machinery whereby the longer routes should be considered as a whole since the Commissioners are instructed to consider the co-ordination of all forms of passenger transport in their areas.

THE GLASGOW TRANSPORT BILL.

BUILDING OF OMNIBUS BODIES.

The Select Committee of the House of Commons, who continued the consideration of the Glasgow Corporation Bill on May 16, passed the clause in which powers were sought to construct bodies for motor omnibuses at the Corporation's works at Coplawhill. The clause was opposed by the Society of Motor Manufacturers and Traders and other motor trade organisations.

For the Corporation, Mr. Normand, K.C., remarked that the Committee had authorised the running of omnibuses in place of tramcars on certain routes, and it therefore seemed just that the Corporation should be permitted to use existing facilities and plant to manufacture omnibus bodies to replace the tramcars. During forty years the Corporation had constructed 954 tramcars as against 569 they had bought. Taking the period from 1898, when the tramways were electrified, they had purchased only 130 cars. It could be shown that the Corporation could produce cars 20 per cent. cheaper than they could purchase them. They employed 796 men, of whom 546 were engaged in repair work and 250 in new and reconditioning work. Counsel admitted that in 1924 and 1927 Parliament refused powers to the Corporation to manufacture complete omnibuses. The present application was not for powers to build chassis, although there were Corporations in England which had such powers.

Mr. L. Mackinnon, general manager of the Transport Department, gave evidence bearing out counsel's statement.

Mr. R. Harker, K.C., in opposition to the clause, stated that many local authorities were abandoning tramways and seeking powers to run some other form of transport. Many of them had such workshops as Glasgow Corporation had, and if powers were given to Glasgow it would be difficult to resist applications from other corporations. Leeds, Rotherham, Birmingham and Leicester had been refused the powers now being sought by Glasgow. One important fact was that bodies were now being built of metal to secure lightness and to minimise the risk of fire. The Glasgow shops might be able to deal with wooden bodies, but they would require a special type of plant to produce metal bodies.—The Committee unanimously granted powers to build omnibus bodies. The Bill returns to the Commons for the report stage and third reading before going to the House of Lords.

TROLLEY OMNIBUSES FOR LONDON.

The Select Committee of the House of Lords, presided over by Lord Wemyss, on May 16, approved the Bill promoted by the London United Tramways Co., who seek powers to abandon 46 miles of tramways to the West and South-West of London and to substitute trolley omnibuses on routes covering 20 miles in Twickenham, Teddington, Hampton, Kingston, Surbiton, Malden and Wimbledon. The estimated cost of the undertaking is £248,000, of which £80,000 will be required for the removal of the tramway tracks.

As the result of conferences all opposition to the Bill was withdrawn. The promoters have agreed to insert a clause providing that, in the event of their proposing to equip for trolley vehicles only part of the existing tramway routes between Wimbledon and Kingston, they should give notice to the local authorities of the district, who might then apply to the Minister of Transport for an order directing the company to equip a whole route.

Mr. Craig Henderson, K.C., informed the Committee that the company had paid no dividend on ordinary shares since 1907, and none on preference shares since 1914. Last year the cars carried 71,500,000 passengers. Since 1918 the company had had to spend £878,000 on road and track maintenance, of which they would be relieved if trolley omnibuses were used. Road and track maintenance also took the revenue received since omnibus competition was regulated. The company was still unable to make payments to reserve. Mr. C. J. Spencer, general manager, London United Tramways, Ltd., stated that the first route to be equipped with trolley omnibuses was from Tolworth to Kingston, Teddington and Twickenham. If the experiments were successful the company would exercise their powers on other routes.

Traffic Accidents in 1929.—According to a Home Office return recently issued, 6,696 persons were killed and 170,917 injured in traffic accidents in 1929. Compared with the figures for 1928 the deaths increased by 558 and the personal injuries by 4,219. Omnibuses and coaches were responsible for 793 deaths, and tramcars and trolley omnibuses for 111. The places with the largest number of deaths were: Metropolitan Police area, 1,362; Glasgow, 152; Liverpool, 85; Manchester, 83; Leeds, 62; Birmingham, 51.

Digitized by Google

MUNICIPAL TRANSPORT MANAGERS' MEETING.

The annual meeting of the Managers' Section of the Municipal Tramways and Transport Association, Incorporated, will, as previously announced, be held at Leicester on Thursday and Friday, May 29 and 30. On the evening of the Wednesday there will be an informal reception at the Grand Hotel by Alderman G. Banton, chairman, members of the Leicester City Transport Committee, and Mr. H. Pool, general manager. The programme for the Thursday and Friday follows :—

THURSDAY, MAY 29.

10 a.m. Official reception by the Lord Mayor, Councillor W. C. Hincks, in the Lancaster Hall.
(1) " Narrative of the City and its Passenger Transport System," by Mr. H. Pool, general manager.
(2) "The Trackless Trolley Omnibus System," by Mr. W. G. Marks, general manager of Transport, Nottingham, and Mr. C. Owen Silvers, general manager of transport, Wolverhampton.
Discussion to follow.

1 p.m. Luncheon at the Grand Hotel by the invitation of the chairman, vice-chairman and members of the City Transport Committee.

2.30 p.m. Discussion of the papers by Mr. Marks and Mr. Silvers to be continued.
(3) " Prevention and Detection of Irregularities." This subject will be introduced by Mr. T. Smalley, general manager of the Barrow-in-Furness Tramways, and Mr. A. A. Blackburn, general manager of Huddersfield Tramways. Discussion will follow.

FRIDAY, MAY 30.

9.45 a.m. Members will proceed by omnibuses to Loughborough Town Hall.
Paper by Mr. L. E. Harvey, general manager, Ilford Corporation Tramways, on " Some Aspects of Tramcar Development." After the paper has been read members will visit the works of the Brush Electrical Engineering Co., Ltd., where, by the kindness of Mr. W. Johnstone, the managing director, Mr. Harvey will illustrate his paper by the newest tramcar. Discussion will follow.

1 p.m. Luncheon at the invitation of Mr. W. Johnstone.

At 2.30 the party will return to Leicester via Charnwood Forest and Bradgate Park, an estate of over 1,000 acres, which has recently been presented to the city by the late Mr. C. Bennion, managing director of the British United Machinery Co. Leicester will be reached about 3.15 p.m., when a visit will be made to the hosiery factory of Messrs. N. Corah & Sons.

THE SCOTTISH TRANSPORT CONFERENCE.

The annual conference of the Scottish Tramways and Transport Association opened yesterday (Friday) at the Atholl Palace Hotel, Pitlochry, and will be continued to-day.

Dr. K. G. Fenelon, lecturer on economics and transport at Edinburgh University, submitted a paper on " The Road Traffic Bill : Its working out in practice." It would seem, he said, that the intention of the Bill was rigidly to enforce the speed limits on omnibuses since time-tables had to be drawn up so as to allow the service to be operated within these limits, and this indeed was stressed in two different sections of the measure. Adverting to the regulation of the hours of work, Dr. Fenelon said that municipal omnibuses were operated on an eight-hour basis of work and the men prefer to work this at a stretch. The new regulations would mean an extra half-hour or more added on to the day's work of eight hours and would require the provision of meal reliefs with consequent disorganisation of the duty schedules and time-tables. The alternative was to divide up the day's work into two periods of three and five hours respectively, allowing a break of an hour or two in between. The Bill as a whole, would provide that regulation of road transport which had become necessary as a result of the great development of road services, and it would substitute an improved system of licensing authorities. It was, however, capable of improvement.

Mr. J. L. Gunn, general manager, Aberdeen Corporation, presented a paper on " City Transport." He advocated that it should be a monopoly, as competition was bad for the operator and also for the public. It was difficult to visualise what the future of city transport was likely to be. The interest of the situation had been increased by the trials now being given to the Diesel engined omnibus running on fuel which cost one-third of the price of petrol.

MANCHESTER EXPRESS OMNIBUS POWERS.

The Local Legislation Committee of the House of Commons on Tuesday and Wednesday last considered the Bill in which Manchester Corporation sought powers to further extend outside the city their express omnibus services. The clause was opposed by Mr. Wrottesley, K.C., for the L.N.E. and L.M.S. Railways. At the first hearing on May 16, Mr. Stuart Pilcher, general manager of the Transport Department, said it was contended that the city boundaries should not apply in the matter of transport. The receipts of the express services outside of the city were pooled, and each district was given a share in accordance with the mileage in the district. Asked by Mr. Wrottesley if the Corporation had not been running these services illegally, Mr. Pilcher replied in the negative, but admitted that the Corporation had " read the powers rather broadly." On all the routes the 47 local authorities had agreed to the omnibuses running through, although in one or two cases licences to ply for hire were refused. The Watch Committee would allow any company or Corporation to run omnibuses provided they joined the co-ordinated scheme, but otherwise the Committee refused the licence because they would not tolerate congestion by the duplication of services.

On Tuesday Mr. H. G. Hickmott, general manager, Ribble Omnibus Company, said that the Corporation proposed to extend their express services into an area which was covered adequately by the company, whereas the Watch Committee imposed unreasonable restrictions on the company when their vehicles ran through the city.

Mr. Wrottesley, on behalf of the railway companies and the Ribble Co., said the clause was a barefaced attempt to remove illegalities. The railway companies should be protected against unfair competition backed by Manchester ratepayers.

On Wednesday Mr. Ashton Davies, of the L.M.S. Railway, gave evidence against the application. In cross-examination by Mr. Craig Henderson, he agreed that he knew of no reason why the railway could not co-ordinate with Manchester in the long-distance services. He was against express services in general. The proposed extension would be a serious menace to the railways.

The Committee passed the clause for extending the area in which the Corporation may operate express services, but expressed a desire that negotiations should be begun at once for entering into arrangements for the Ribble Company to join in the provision of services within the twelve-mile limit.

L.C.C. TRAMWAY MATTERS.

MR. T. E. THOMAS APPOINTED GENERAL MANAGER.

At Tuesday's meeting of the London County Council the General Purposes Committee presented the following report : " We have considered as to the arrangements to be made consequent upon the retirement at June 30, 1930, of Mr. J. K. Bruce, general manager of tramways. We are unanimously of opinion that Mr. T. E. Thomas, traffic manager in the tramways department, should be promoted to be general manager of tramways. Mr. Thomas, who is 48 years of age, entered the Council's service in 1917, being selected from 38 candidates who applied in response to public advertisements for the position of development superintendent in the traffic branch of the tramways.

" Prior to his appointment in the Council's service Mr. Thomas was commercial superintendent of the Metropolitan District Railway Co., the London General Omnibus Co. and allied companies. In 1925 Mr. Thomas was promoted to his present position, his salary being now £1,800 a year, and for over twelve months during the past two years he has acted as general manager owing to Mr. Bruce's absence on sick leave. We feel confident that Mr. Thomas will prove a worthy successor to Mr. Bruce. The Council on July 16, 1929, fixed the salary for the position of general manager as from and including April 1, 1930, at £2,000 a year rising, after four years' service, by annual increments of £250 to £3,000 a year. We recommend :—That Mr. Theodore Eastaway Thomas, traffic manager in the tramways department, be promoted to be general manager of tramways, as from and including July 1, 1930, at a salary of £2,000 a year, rising, after four years' service in that office at that remuneration, by annual increments of £250 to £3,000 a year."

The recommendation was unanimously adopted. Mr. Thomas was called to the dais, and shook hands with the chairman, who cordially congratulated him upon his appointment. In thanking the Council, Mr. Thomas said it would be his constant endeavour to justify the confidence which had been reposed in him.

CAR CREWS' MEALS.

On the motion of Mr. R. Pearson the Council requested the Highways Committee to consider and report whether better facilities can be afforded to the motormen and conductors to obtain meals whilst working on the Council's tramcars.

THE ROAD TRAFFIC BILL.

When the Standing Committee of the House of Commons which is considering the Road Traffic Bill met on Tuesday last, attention was first given to Clause 97, relating to forgery of motor licences and insurance certificates. An amendment was agreed to making the maximum penalty for forgery two years' imprisonment.

A sub-section of Clause 98 provides that where an offence was alleged to have been committed by a driver the owner of the vehicle should be guilty of an offence if he did not inform the police of the identity of the driver or prove to the satisfaction of the Court that he was unaware of it. Colonel Ashley moved to delete the sub-section, as it might lead to " third degree " methods on the part of the police. The Minister of Transport replied that the owner was only asked to give information required to secure identification of the person who was driving at the time. The amendment was lost, and the clause was adopted.

On Thursday the Committee agreed to a new clause dealing with the premiums and deposits payable by insurers carrying on motor vehicle business. The Solicitor-General said that the question had been settled in consultation with the insurance interests. The Committee then considered a new clause, proposed by the Minister of Transport, to incorporate in the Bill the Tolls Bill, which had received a unanimous second reading in the House of Commons. It provides that local authorities shall be empowered to acquire toll roads and bridges compulsorily in the event of failure to reach voluntary agreement with the owners. There was a widespread feeling, Mr. Morrison said, that tolls on roads and bridges should be swept away at the earliest moment. The clause, with certain amendments, was accepted.

Digitized by Google

MISCELLANEOUS NEWS AND NOTES.

L.C.C. Tramway Posters.—Four posters of London scenes recently issued by the London County Council Tramways raised to 100 the number of London illustrations in poster form. The last four posters are Epping Forest, Hyde Park, Dulwich Park and Ken Wood.

Nelson's Reconstruction Problem.—In view of the need in the near future for reconstructing the track and replacement of the overhead equipment in the Colne area, a suggestion for alternative schemes has been made by Colne Tramways Committee to the Nelson Corporation. The two towns are connected by tramway, and Colne still has an outstanding loan amounting to £103,788.

Kearney High-speed Railway.—Reuter reports that the State treasurer of New South Wales has expressed approval of the Kearney High-speed Railway Company's proposal to finance and construct a railway from North Sydney to Newport at a cost of £4,500,000. The proposal, which is to be considered by the Cabinet, is conditional upon a sixty years' franchise.

"Wireless" Complaints at Oldham.—A report received from the general manager by Oldham Tramways Committee states that he had carefully considered complaints which had been made of interference of wireless broadcast reception alleged to arise in connection with the running of tramcars. The Committee decided, after discussion, that they could not take any action at the present time.

Cost of Living.—On May 1 the average level of retail prices of the commodities taken into account in the statistics compiled by the Ministry of Labour, and generally styled "the cost of living figure," was approximately 55 per cent. above that of July, 1914, as compared with 57 per cent. a month ago and 61 per cent. a year ago. The figure is lower now than at any time since October, 1916, when it was 50 per cent.

Safety of Tramway Passengers.—The Edinburgh police have been active in prosecuting motorists who pass a tramcar which has stopped to discharge or pick up passengers. In Edinburgh there is a by-law which forbids the practice. During the past few weeks the London County Council tramways department instituted proceedings which resulted in fines being imposed on four persons for driving motor cars or motor cycles in a manner dangerous to the public.

Institute of Transport Congress.—The annual congress of the Institute of Transport will be held at Glasgow from July 8 to 12. Representatives of Glasgow Tramways on the local Committee comprise Mr. P. J. Dollan (chairman), Bailie J. H. Stevenson (vice-chairman), Mr. L. Mackinnon (general manager), and Mr. J. N. Wilson (deputy manager). Edinburgh Tramways are represented by Mr. F. A. Fitzpayne, general manager, and Mr. R. McLeod, deputy manager. Mr. L. Mackinnon is one of the two hon. secretaries.

Plymouth and Double-Deck Omnibuses.—In asking various firms to tender for the supply of six double-deck omnibuses, Plymouth Tramways and Transport Committee has stated that tenderers will be required to send service vehicles to the city for trial. Objection having been raised to such vehicles as being unsuitable for use on considerable gradients in the narrow streets, Mr. C. Jackson, the transport manager, has pointed out that the Ministry of Transport regulations concerning gradients apply to the tramways only and not to omnibuses.

National Safety Congress.—A National Safety Congress was held on Wednesday and Thursday at Liverpool, the Duke of York, patron of the National Safety Association, presiding. Sir Henry Maybury dealt with "The development of roads and road transport, with special reference to the prevention of accidents." Sir Henry mentioned that of 394 accidents inquired into between April 1, 1928, and March 31, 1929, the causes were assigned as follow:—Mechanical defects of vehicle, 68; unsatisfactory road conditions, 84; error or negligence on part of driver, 200; other causes, 42. The vehicles involved in such accidents were:—Public service, 84, or 21 per cent.; private vehicles, 269, or 68 per cent.; commercial vehicles, 45, or 11 per cent.

Nottingham Trolley Omnibus Bill.—The House of Lords' Select Committee on the Nottingham Corporation Bill on May 16 reversed some of the decisions of a Committee of the House of Commons, the opposition of the County Council, Carlton and Arnold Urban Councils and the Trent Traction Co. being renewed before the Lords' Committee. In the Lower House sanction was given to trolley omnibus routes in substitution for certain tramways in and without the city and in continuation of tramways outside the city. While granting protection to routes within the city, the House of Commons' Committee refused the monopoly clause to extensions outside the city. The Lords' Committee sanctioned conversion of existing tramways, but refused powers for extensions outside the city in Beeston and Carlton. The monopoly clause was granted.

North London Tube Bill.—A Select Committee of the House of Lords on Thursday continued consideration of the Bill promoted by the Underground Electric Railway Companies for an extension of the Piccadilly Tube northwards from Finsbury Park to Cockfosters. The Bill has already been passed by the Commons. Mr. Frank Pick, on behalf of the promoters and the London General Omnibus Co., Ltd., said that about £8,000,000 of the expenditure to be incurred under the Bill would be eligible for the guarantee under the Development Act. The works authorised would provide 40,000 to 50,000 man-hours of employment. Besides the North London tube extension it was proposed to reconstruct lines west of Hammersmith to permit of tube trains being run direct to Northfields. Since the passing of the London Traffic Act the group had bought a number of "pirate" omnibuses and taken them out of service, thus restoring comparative order to London streets. The group now owned 95 per cent. of the omnibuses in the London area.

CONTRACTS.

Oldham Corporation has accepted the tender of Edgar Allen and Co., Ltd., for the supply of track work.

Extension of L.C.C. Electric Cables.—The London County Council on April 15 referred to the Highways Committee the undermentioned tenders for the supply of high and low tension electric cables and the building up of existing cables, etc., for the tramways service:—

	Amount of Tender.
Standard Telephones and Cables, Ltd.	£46,725 19 0
Johnson & Phillips, Ltd.	48,232 17 3
Callenders' Cable and Construction Co., Ltd.	48,975 15 11
W. T. Henley's Telegraph Works Co., Ltd.	49,171 13 8
Pirelli General Cable Works, Ltd.	50,528 8 6
British Insulated Cables, Ltd.	51,715 11 2
Macintosh Cable Co., Ltd.	51,993 10 7
Metropolitan Cable and Construction Co., Ltd. ...	... Tender incomplete.
Siemens Bros. & Co., Ltd. ...	Schedule complete, but tender not signed.
W. T. Glover & Co., Ltd.	Schedule complete, but tender not signed.

The estimate of the general manager of the tramways, comparable with the tenders at the date of the issue of the advertisement was £52,000. The Committee reported on May 20 that they had accepted the lowest complete tender, that of the Standard Telephones and Cables, Ltd., amounting to £46,725 19s., subject to reduction of the prices in the schedule to conform with the ruling price of copper at the date of acceptance. Owing to a substantial fall in the price of copper on that date the price was reduced by £4,664 7s. 5d., and the tender, as amended, amounted to £42,061 11s. 7d. The cables will be of British manufacture.

FINANCIAL.

L.C.C. Tramways Receipts.—The traffic receipts for the week ended May 21 amounted to £82,762, a decrease of £5,325 compared with the corresponding week of last year. The route length was 165.60 miles, as compared with 166.29 a year ago. From April 1 (the commencement of the financial year) to May 21 (7 2-7 weeks), the total receipts were £603,613, a decrease of £4,557.

Municipal Transport Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended May 3 give total receipts of £417,434, or £13,562 more than in the corresponding week of last year. The aggregate receipts for five weeks amounted to £2,072,556, an increase of £78,831 over the corresponding period of last year.

PERSONAL.

Sir Francis Dunnell, formerly solicitor and secretary of the L.N.E. Railway Company, has been appointed a Railway and Canal Commissioner in succession to the late Sir L. Coward.

Mr. F. Bertram Galer has been elected chairman of the Highways Committee of the London County Council, in succession to Mr. Charles W. Matthews, who has resigned after years of devoted service.

Lieut.-Col. W. A. Vignoles, director of the Electrical Development Association, is shortly to make a trip to America, where he will study policy and public relations in the electrical supply industry of the United States.

Mr. Albert Gent has been appointed assistant engineer to Reading Corporation Tramways. Mr. Gent has for ten years been with Rawtenstall Corporation Tramways, and was previously with Accrington Tramways.

Mr. J. W. Speight, electrical engineer and manager of Leyton Corporation electricity department, has been granted an increase in salary to the maximum of £1,050 per annum as from July 1 next, instead of on July 1, 1931.

Mr. J. W. Beauchamp has resigned his appointment as engineer and manager of the South Wales Power Co. in order to accept an important position with the Central Electricity Board in connection with the South-West England and South Wales Electricity Scheme.

Mr. George J. Shave, engineer and operating manager of the London General Omnibus Co., will read a paper at the annual convention of the American Electric Railway Association, which will be held at St. Francisco from June 23 to 26. Mr. Shave will attend the Convention as the delegate of the Commercial Motor Users' Association, of which he is vice-chairman.

Sir Felix Pole, chairman of Associated Electrical Industries, Ltd., and formerly general manager of the Great Western Railway, acted as arbitrator in the dispute at Broadstone Mills, Reddish, whose operatives were on strike for several weeks as a protest against the dismissal of one of their number. Sir Felix was selected by the joint committee of representatives of the Federation of Master Cotton Spinners' Associations and of the Operative Spinners' Amalgamation.

L.C.C. Highways Committee.—For the year 1930-31 the Highways Committee of the London County Council has formed the following sub-committees:—Tramways Management Sub-Committee: Major E. H. Coumbe, Messrs. D. Davies, I. J. Hayward, Charles W. Matthews and J. Speakman, and Miss R. Smith. Works and General Purposes Sub-Committee: Mr. C. R. Bennett, Major Coumbe, Messrs. D. Davies, F. Leigh Pollit, J. Speakman and H. A. Wilmot. Each sub-committee has also ex-officio members.

Superintendent E. Walters, of the Hull Corporation Tramways, has been the recipient of a leather wallet filled with £1 notes, and a leather bag has been presented to Mrs. Walters. The presentation was made by Alderman R. Mell, chairman of the Tramways Committee, who alluded to Mr. Walters' valuable services to the tramways undertaking.

Digitized by Google

Mr. Wm. Grant, general manager of Ayr Corporation Tramways and Omnibuses, has been entertained at a social gathering by the Tramways Social Club in recognition of his completion of 25 years' service as manager. A cabinet gramophone was presented to him, and a handsome wristlet watch to Mrs. Grant. Bailie C. C. Hutchison, convener of the Tramways Committee, presided, and stated that from his close association with Mr. Grant for seven years he could say that it was all to the credit of the general manager that the undertaking had come out as well as it had done. Mr. J. Browne, traffic superintendent, made the presentation, remarking that Mr. Grant had become endeared to them all. Other members of the staff and of the employees also spoke. Mr. Grant, in reply, said that he had been very happy, conscious through these years that he had their respect and goodwill. It was 38 years since he first took up electric tramway work, and 36 years since he entered Corporation employment in connection with electric traction at Blackpool. Next he assisted in the change over from steam to electric cars at Darwen. During his 25 years at Ayr there had been only five fatal accidents on the tramways. The operating costs were the lowest in Great Britain, being 5½d. per car mile before the war and 1s. to-day. Although the halfpenny fare had been discontinued, they gave an average of a mile for a penny, and he knew of no other place which did so.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

Name.	Week ended	Latest Return. 1929	1930	+ or −	Aggregate. Wks	1930	+ or −
		£	£	£		£	£
Aberdare U.D.C.	May 20	630	521	− 109	7	4,084	− 90
,, Motor Buses	,, 20	232	276	+ 44	7	2,068	+ 191
,, Total ...	,, 20	862	797	− 65	7	6,152	+ 101
Aberdeen Corp.	,, 14	4,743	4,801	+ 58	50¾	244,469	+ 19,241
Ashton-u-Lyne Corp.	,, 10	932	853	− 79	6	5,134	− 223
,, Motor Buses	,, 10	503	518	+ 15	6	3,060	+ 100
,, Trolley Buses	,, 10	285	265	− 20	6	1,659	− 38
,, Total ...	,, 10	1,720	1,636	− 84	6	9,853	− 161
Ayr Corporation	,, 15	253	306	+ 53	52	29,343	+ 1,399
Barrow Corporation	,, 10	579	516	− 63	6	3,340	− 88
,, Motor Buses	,, 10	292	349	+ 57	6	2,198	+ 526
,, Total ...	,, 10	871	865	− 6	6	5,538	+ 438
Belfast City	,, 16	11,523	11,540	+ 17	6½	75,979	+ 4,278
,, Motor Buses	,, 16	1,165	1,367	+ 202	6½	9,005	+ 1,948
,, Total ...	,, 16	12,688	12,907	+ 219	6½	84,984	+ 6,226
Birkenhead Corp.	,, 18	1,711	1,601	− 110	7	10,842	− 752
,, Motor Buses	,, 18	3,320	3,468	+ 148	7	23,138	+ 1,497
,, Total ...	,, 18	5,031	5,069	+ 38	7	33,980	+ 745
Birmingham Corp.	,, 13	27,426	26,547	− 879	6	162,673	+ 1,671
,, Motor Buses	,, 13	12,474	15,102	+ 2,628	6	92,520	+ 20,160
,, Trolley Buses	,, 13	569	567	− 2	6	3,458	+ 192
,, Total ...	,, 13	40,469	42,216	+ 1,747	6	258,660	+ 22,023
Blackburn Corp.	,, 14	1,964	1,734	− 230	6¾	11,707	− 454
,, Motor Buses	,, 14	Nil	306	+ 306	6¾	2,080	+ 2,080
,, Total ...	,, 14	1,964	2,040	+ 76	6¾	13,787	+ 1,626
Bradford Corporation	,, 17	15,275	14,433	− 842	7	95,754	− 6,078
Brighton Corporation	,, 18	2,517	2,405	− 112	6¾	16,718	+ 941
Burnley Corporation	,, 17	2,950	2,747	− 203	---	---	---
,, Motor Buses	,, 17	633	677	+ 44	---	---	---
,, Total ...	,, 17	3,583	3,424	− 159	---	---	---
Burton-on-Trent Corp.	,, 18	817	823	+ 6	7	5,946	+ 3,017
Bury Corporation	,, 18	2,261	1,795	− 466	6¾	12,712	− 2,419
,, Motor Buses	,, 18	376	1,111	+ 735	6¾	7,335	+ 4,810
,, Total ...	,, 18	2,637	2,906	+ 269	6¾	20,047	+ 2,391
Cardiff Corporation	,, 17	7,027	7,305	− 322	6¾	52,503	+ 2,572
Chatham and District	,, 15	1,043	1,071	+ 28	19	20,610	+ 1,214
Chester Corporation	,, 18	435	Nil	− 435	7	Nil	− 3,220
,, Motor Buses	,, 18	Nil	945	+ 945	7	4,562	+ 4,562
,, Total ...	,, 18	435	945	+ 510	7	4,562	+ 1,342
Chesterfield Corp.	,, 19	2,338	1,889	− 449	7	13,414	+ 240
Colchester Corp.	,, 21	684	574	− 110	8	4,278	+ 336
Colne Corporation	,, 14	678	641	− 37	6	4,430	+ 80
Coventry Corporation	,, 18	2,201	2,003	− 198	7	14,536	− 402
,, Motor Buses	,, 18	1,615	1,820	+ 205	7	12,837	+ 2,056
,, Total ...	,, 18	3,816	3,823	+ 7	7	27,373	+ 1,564
Darlington Corp.	,, 17	981	1,027	+ 46	6⅝	7,231	+ 819
Derby Corporation	,, 17	2,586	2,424	− 162	7	16,734	− 41
,, Motor Buses	,, 17	692	922	+ 230	7	6,090	+ 1,801
,, Total ...	,, 17	3,278	3,346	+ 68	7	22,824	+ 1,760
Dover Corporation	,, 17	360	364	+ 4	7	2,550	+ 127
Dundee Corporation	,, 6	3,410	3,441	+ 31	50¾	174,499	+ 6,107
East Ham Corp.	,, 17	2,326	2,309	− 17	6¾	15,602	+ 524
Edinburgh Corp.	,, 10	14,439	14,482	+ 43	51¼	735,137	+ 28,790
,, Motor Buses	,, 10	3,359	3,630	+ 271	51¼	179,144	+ 20,086
,, Total ...	,, 10	17,798	18,112	+ 314	51¼	914,281	+ 48,876
Exeter Corporation	,, 21	967	813	− 154	8	5,986	− 463
Glasgow Corporation	,, 17	45,538	45,224	− 314	50	2,220,447	+ 33,882
,, Motor Buses	,, 17	4,909	3,420	− 1,579	50	332,344	+ 157,571
,, Total ...	,, 17	50,537	48,644	− 1,893	50	2,552,791	+ 191,453
Gloucester Corp.	,, 14	518	669	+ 151	6¾	4,367	+ 1,145
Grimsby Corporation	,, 17	1,340	1,473	+ 133	7	10,239	+ 1,470
Halifax Corporation	,, 13	4,617	4,991	+ 374	6½	31,497	+ 3,638
Huddersfield Corp.	,, 17	6,357	6,072	− 285	7	44,071	− 778
Hull Corporation	,, 17	5,820	5,805	− 15	7	40,090	+ 24
,, Motor Buses	,, 17	1,293	1,409	+ 116	7	9,656	+ 893
,, Total ...	,, 17	7,113	7,214	+ 101	7	49,746	+ 917
Ilford Corporation	,, 17	1,467	1,495	+ 30	6⅞	10,234	+ 374
Ipswich Corp. Trol.Bus	,, 17	1,235	1,238	+ 3	6⅞	8,758	+ 633
Isle of Thanet	,, 14	525	477	− 48	19½	7,890	− 69
Kilmarnock Corp.	,, 10	469	472	+ 3	51¼	24,636	+ 1,837
Lancashire Un.	,, 11	2,297	2,092	− 205	18¾	40,866	− 1,602
,, Motor Buses	,, 11	4,115	4,606	+ 491	18¾	87,793	+ 14,057
Leeds Corporation	,, 17	19,490	19,687	+ 197	6⅞	133,588	+ 4,948
Leicester Corp.	,, 17	8,498	8,349	− 149	7	56,801	+ 1,783
Lincoln Corp.	,, 18	949	883	− 66	7	6,352	+ 91
Liverpool Corp.	,, 17	29,945	29,642	− 303	6⅝	202,443	+ 4,590
London County Coun.	,, 21	88,087	82,762	− 5,325	7⅛	603,613	− 4,557
Luton Corporation	,, 14	387	402	+ 15	6¼	2,776	+ 286
Maidstone Corp.	,, 15	208	Nil	− 208	6¾	Nil	− 1,747
,, Motor Buses	,, 15	267	254	− 13	6¾	1,815	− 4
,, Trolley Buses	,, 15	289	555	+ 266	6¾	4,311	+ 2,265
,, Total ...	,, 15	764	809	+ 45	6¾	6,126	+ 514
Manchester Corp.	,, 17	35,880	32,268	− 3,612	7	218,276	− 19,560
,, Motor Buses	,, 17	4,857	8,302	+ 3,445	7	56,204	+ 23,969
,, Total ...	,, 17	40,737	40,570	− 167	7	274,480	+ 4,409
Middlesbrough Corp.	,, 13	1,091	1,026	− 65	6½	6,699	− 370
,, Motor Buses	,, 13	472	541	+ 69	6½	3,452	+ 426
,, Total ...	,, 13	1,563	1,567	+ 4	6½	10,151	+ 50

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS—*Continued.*

Name.	Week ended	Latest Return. 1929	1930	+ or −	Aggregate. Wks.	1930	+ or −
		£	£	£		£	£
Newcastle-on-Ty.Corp.	May 17	10,363	8,518	− 1,845	6¾	59,102	− 3,860
,, Motor Buses	,, 17	2,143	2,484	+ 341	6¾	17,045	+ 4,086
,, Total ...	,, 17	12,506	11,002	− 1,504	6¾	76,147	+ 226
Newport Corporation	,, 10	1,682	1,608	− 74	6	9,638	+ 264
,, Motor Buses	,, 10	722	770	+ 48	6	4,848	+ 723
,, Total ...	,, 10	2,404	2,378	− 26	6	14,486	+ 987
Northampton Corp.	,, 16	1,067	1,123	+ 56	6¾	7,410	− 386
,, Motor Buses	,, 16	651	682	+ 31	6¾	4,563	+ 889
,, Total ...	,, 16	1,718	1,805	+ 87	6¾	11,973	+ 503
Nottingham Corp.	,, 15	6,453	5,710	− 743	6¾	36,917	− 4,898
,, Motor Buses	,, 15	2,219	3,233	+ 1,014	6¾	20,654	+ 6,291
,, Trolley Buses	,, 15	608	1,193	+ 585	6¾	7,667	+ 3,787
,, Total ...	,, 15	9,280	10,136	+ 856	6¾	65,238	+ 5,180
Oldham Corporation	,, 17	3,681	3,333	− 348	8	26,095	− 2,044
,, Motor Buses	,, 17	1,998	2,027	+ 31	8	15,980	− 61
,, Total ...	,, 17	5,677	5,360	− 317	8	42,981	− 2,105
Plymouth Corp.	,, 17	3,673	3,447	− 226	6¾	24,735	− 56
,, Motor Buses	,, 17	1,866	2,307	+ 441	6¾	15,944	+ 3,428
,, Total ...	,, 17	5,539	5,754	+ 215	6¾	40,679	+ 3,372
Portsmouth Corp.	,, 17	5,755	6,453	+ 698	7	45,717	+ 7,099
Preston Corporation	,, 14	1,722	1,614	− 108	6¾	10,476	− 424
,, Motor Buses	,, 14	479	504	+ 25	6¾	3,196	+ 199
,, Total ...	,, 14	2,201	2,118	− 83	6¾	13,672	− 225
Rawtenstall Corp.	,, 18	905	655	− 250	6¾	5,003	− 1,046
,, Motor Buses	,, 18	537	765	+ 228	6¾	4,649	+ 1,053
,, Total ...	,, 18	1,442	1,420	− 22	6¾	11,652	+ 7
Reading Corporation	,, 15	1,473	1,424	− 49	7	9,142	− 223
,, Motor Buses	,, 15	872	949	+ 77	7	6,231	+ 783
,, Total ...	,, 15	2,345	2,373	+ 28	7	15,373	+ 560
Rochdale Corp.	,, 17	3,036	2,658	− 378	---	18,646	− 2,018
,, Motor Buses	,, 17	1,519	1,428	− 91	---	10,976	+ 1,027
,, Total ...	,, 17	4,555	4,086	− 469	---	29,622	− 991
Rotherham Corp.	,, 19	2,903	2,618	− 285	7	19,688	+ 1,286
Salford Corporation	,, 18	11,546	11,260	− 286	6¾	77,729	+ 1,571
Sheffield Corp.	,, 17	20,563	20,498	− 65	6¾	145,826	+ 2,557
Southampton Corp.	,, 14	3,312	3,269	− 43	7	21,180	+ 991
,, Motor Buses	,, 14	648	851	+ 203	7	5,543	+ 1,505
,, Total ...	,, 14	3,960	4,120	+ 160	7	26,723	+ 2,496
Southend-on-Sea Corp.	,, 21	2,861	2,120	− 741	7⅜	15,773	− 187
Southport Corp.	,, 17	1,269	1,189	− 80	6¾	8,548	+ 284
,, Motor Buses	,, 17	384	358	− 26	6¾	2,580	+ 393
,, Total ...	,, 17	1,653	1,547	− 106	6¾	11,128	+ 677
St. Helens Corp.	,, 13	1,854	1,906	+ 52	6¼	12,470	+ 1,335
Sunderland Corp.	,, 20	2,759	2,385	− 374	7	17,001	+ 347
,, Motor Buses	,, 20	193	471	+ 278	7	3,183	+ 2,864
,, Total ...	,, 20	2,952	2,856	− 96	7	20,184	+ 3,211
Swindon Corp.	Apr. 30	590	974	+ 384	4⅜	4,213	+ 1,486
Wallasey Corp.	May 17	1,301	1,157	− 144	6⅝	8,115	− 346
,, Motor Buses	,, 17	1,999	2,112	+ 113	6⅝	14,407	+ 2,087
,, Total ...	,, 17	3,300	3,269	− 31	6⅝	22,522	+ 1,741
Walsall Corporation	,, 11	3,316	3,453	+ 137	6	21,349	+ 1,173
Walthamstow Corp.	,, 17	2,339	2,433	+ 94	6⅝	16,523	+ 185
Warrington Corp.	,, 15	882	871	− 11	7	6,250	+ 56
,, Motor Buses	,, 15	442	488	+ 46	7	3,470	+ 400
,, Total ...	,, 15	1,324	1,359	+ 35	7	9,720	+ 456
West Ham Corp.	,, 15	5,962	6,244	+ 282	6⅞	39,898	+ 915
Wolverhampton Corp.							
,, Motor Buses	,, 18	2,917	2,348	− 569	7	16,893	− 2,696
,, Trolley Buses	,, 18	3,303	3,457	+ 154	7	24,632	− 2,327
,, Total ...	,, 18	6,220	5,805	− 415	7	41,525	− 5,023
York Corporation	,, 14	946	969	+ 23	7	6,348	+ 370
,, Motor Buses	,, 14	369	498	+ 129	7	3,159	+ 866
,, Trolley Buses	,, 14	47	Nil	− 47	7	Nil	− 256
,, Total ...	,, 14	1,362	1,467	+ 105	7	9,507	+ 980

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

Name.	Week or M'th.	Latest Return. 1929	1930	Aggregate. Wks. or *Ms.*	1930	In. or Dec.
Anglo-Argentine	May 20	£80,923	£85,669	20 *w*	£1,685,901	− £86,606
Brazilian Traction $	Apr.	1,042,145	1,127,492	4 *m*	15,835,315	+ 216,078
British Columbia $	Mar.	1,243,592	1,258,375	9 *m*	11,110,713	+ 567,360
Buenos Aires Lacroze	May 18	12,109	11,786	46 *w*	540,723	− 42,785
Burma E. Sup. Co. Rs.	Apr.	64,744	65,482	9 *m*	577,208	− 22,269
Calcutta ... Rs.	May 17	123,963	103,600	19½ *w*	2,310,454	− 237,861
Cape Town	Apr.	29,244	27,500	...	...	...
Carthagena & Herrerias	Apr.	1,063	905	4 *m*	4,545	+ 925
Durban	Mar.	24,442	23,662	8 *m*	190,536	+ 1,460
East India	Mar.	3,798	3,601	9 *m*	34,126	+ 571
Kalgoorlie	Feb.	1,433	1,437	2 *m*	2,981	− 73
Madras (2 weeks) Rs.	May 15	44,357	45,842	18 *w*	417,745	+ 28,138
Para	Apr.	15,060	15,564	5 *m*	73,211	+ 785
Port Elizabeth ...	Apr.	7,877	7,521	...	...	...
Rangoon ... Rs.	Apr.	120,855	148,215	4 *m*	608,025	+ 134,789
Shanghai ... $	Apr.	336,624	308,840	4 *m*	1,372,562	+ 82,225
Singapore ... ...$	Apr.	131,000	137,000	7 *m*	935,000	+ 108,000
Winnipeg ... ...$	Mar.	572,492	571,157	3 *m*	1,767,705	+ 16,352

RAILWAY RECEIPTS.

20th Week ended May 18th	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week.	Inc. or Dec. to Date.
G.W.R.	215,000	− 61,000	342,000	− 30,000	557,000	− 91,000	− 336,000
L.M.S.R.	460,000	− 216,000	786,000	− 76,000	1,246,000	− 292,000	−1,122,000
L.N.E.R.	310,000	− 86,000	647,000	− 58,000	957,000	− 144,000	− 456,000
S.R.	292,000	− 82,000	109,000	− 1,000	401,000	− 83,000	− 103,000
Totals	1,277,000	− 445,000	1,884,000	− 165,000	3,161,000	− 610 000	−2,017,000

ELECTRIC RAILWAYS.

Name.	Week Ended.	Latest Return. 1929.	1930.	+ or −	Aggregate. 1930.	+ or −
London Underground						
Common Fund Cos.	May 17	288,500	306,000	+ 17,500	5,876,400	+ 449,700
Lond. & Sub. Group	,, 17	42,100	45,000	+ 2,900	852,200	+ 81,000
Metropolitan Railway	,, 17	37,300	36,300	− 1,000	731,600	+ 21,200
Liverpool Overhead	,, 18	1,633	1,499	− 134	29,917	− 1,437
Mersey Railway ...	,, 17	4,366	4,439	+ 73	94,016	+ 2,640

Digitized by Google

THE
Tramway and Railway World
FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.
Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates:
FOR THE UNITED KINGDOM—Twenty-five shillings per annum.
FOR ALL PLACES ABROAD—Twenty-five shillings per annum. Postage to Canada, 6s.: to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS

LONDON, MAY 31, 1930.

TRAMCAR DEVELOPMENT.

Of the indications of vigour in the road transport industry none gives greater satisfaction than the post-war attention bestowed upon the tramcar. At several annual conferences car improvements have afforded a basis for discussion, beginning first with body construction. Most notable of the early papers was one by Mr. W. E. Ireland, the rolling stock engineer to the London County Council, who outlined the directions in which advances could be made in truck construction and in the power units. Matters then remained quiet for a few years, except for improvements achieved in providing the London County Council with trucks and motors for a new standard car. Discussion next veered to body alterations with a view to giving the passenger the comfort that was lacking in the longitudinal benches, along which he was jolted by the stopping and starting of the car. The world now knows that the improvement in interiors and in speed effected during the past three years has brought financial success to the L.C.C. undertaking. Now few tramways are to be found where passenger comfort is not being provided for. Slightly in advance of the L.C.C. effort, the London company tramways demonstrated in a series of cars how a tramcar could be made not only sumptuous within but a thing of beauty without. Since then the L.C.C. staff have not been idle. First they placed in service a new type for hilly routes. As far as the truck is concerned this type is to be the basis for the 150 new standard cars for which orders have been passed to various manufacturers for trucks, bodies and equipment. Interior comfort will show an advance in both saloons, and room will be found for two more seated passengers (74 in all) notwithstanding that the gangway on each deck is wider. As there is an increase of five inches in the width of the top saloon, and as cushioned backs are now given to all the seats, the next-to-the-gangway passenger will no longer have to sit with the seat-frame pressing against his spinal column. Ventilation may be said to have attained perfection in these new cars, thanks in part to a speciality well known to readers of the business pages of this journal. Further progress is, among other things, to be seen in the installation of top-deck windows that can be opened or closed by the passenger with one hand, all-metal body construction, and that great safety provision—non-splinter glass. The reference to all-metal construction is a reminder of what has been accomplished by the Birmingham management in producing a lighter car in order to meet higher operation cost of more powerful motors due to congested areas. Returning to the conferences, the interesting paper submitted to last year's meeting of the Tramways, Light Railways and Transport Association by Mr. G. H. Fletcher, of the Metropolitan Vickers Co., is bearing fruit this year. At yesterday's proceedings of the Managers' Section of the Municipal Tramways and Transport Association, Mr. L. E. Harvey discoursed on "Some Aspects of Tramcar Development," followed by a subsequent inspection of the newest tramcar at the works of the Brush Electrical Engineering Co. Again, at the second day's proceedings of the Hastings Congress of the Tramways and Light Railways and Transport Association there will be a paper on "The Tramcar: Present and Future," by Mr. J. L. Burton, of The English Electric Co., assisted by Mr. H. H. Andrews, of the same company. With first-class advisers and the admirable cars available the industry should have no difficulty in meeting competition.

MUNICIPAL TRANSPORT MANAGERS.

THE LEICESTER MEETING.

The visit of the members of the Managers' Section of the Municipal Tramways and Transport Association to Leicester for their annual meeting on Thursday and yesterday (Friday) proved very successful. On the first day the Lord Mayor (Councillor Hincks) received the members in the Lancaster Hall.

Mr. H. Pool, general manager of Leicester Corporation Transport, gave an interesting narrative of the city and its transport system, prior to which he had the satisfaction of showing the visitors the new experimental tramcar. Speed and comfort are its chief characteristics, the seating being particularly praiseworthy. The reconstruction of the car was accomplished in the Corporation shops.

Mr. W. G. Marks (general manager of Nottingham Corporation Transport) and Mr. Owen Silvers (general manager at Wolverhampton) submitted papers on "The Trolley Omnibus," which evoked discussion until luncheon at the Grand Hotel by invitation of the chairman, vice-chairman, and members of the Leicester Transport Committee.

The discussion was resumed at the afternoon sitting, when consideration was also given to "The Prevention and Detection of Irregularities." The introducers were Mr. T. Smalley (general manager, Barrow-in-Furness Tramways) and Mr. A. A. Blackburn (general manager, Huddersfield Tramways).

SOME ASPECTS OF TRAMCAR DEVELOPMENT.

Yesterday (Friday) the members proceeded by omnibus to Loughborough Town Hall to hear a paper by Mr. L. E. Harvey (general manager, Ilford) on "Some Aspects of Tramcar Development." The visitors had the advantage, after the reading of the paper, of going to the works of the Brush Co., where Mr. Harvey illustrated his remarks by the newest tramcar. He was enabled to do this by the courtesy of Mr. W. Johnstone (the managing director of the Brush Co.) In his paper, Mr. Harvey spoke only of such things of which he had had personal experience. These included roller and ball-bearings for axles, roller armature bearings, ball-bearings for trolley heads and brake spindles, the toggle brake which had proved so successful on the Continent and is now made by the Brush Co. and marketed by the Peckham Truck Co.; modern windows for upper saloons for which Mr. Harvey has evolved a passenger-operated sliding window in conjunction with Beckett, Laycock & Watkinson, Ltd.; conductors' bells, ventilation, handrails and stanchions, step treads, doors, seating, conductors' ticket boxes, used-ticket boxes, lamps, reflectors and shades, sand gear, wheel tyres, and overhead equipment, including bow collectors.

The discussion was most instructive, and luncheon followed at the invitation of Mr. W. Johnstone, whose kindness was suitably acknowledged.

At the municipal luncheon on Thursday, the Lord Mayor proposed "The Municipal Tramways and Transport Association," to which toast Mr. Stuart Pilcher (vice-president) responded. Mr. A. R. Fearnley submitted "The City of Leicester Tramways and Motor Omnibus Committee." Alderman G. Banton, the chairman, responded.

Digitized by Google

THE ROAD TRAFFIC BILL.

PROPOSED PARTIAL INCLUSION OF LONDON.

An important new clause dealing with London traffic was added to the Bill when the Standing Committee of the House of Commons on the Road Traffic Bill met on Tuesday.

Mr. Morrison, Minister of Transport, moved the new clause with the object of partly including London in the Bill. He pointed out that although London omnibuses were under reasonably effective control, the machinery was not adapted to coaches. The Government was considering the whole problem of London traffic, and it would be unwise to do anything through the Bill to complicate the problem. It was proposed, therefore, to apply Part IV with modifications. One Traffic Commissioner would be substituted for three Commissioners, and the London omnibus services would be excluded, leaving them to be controlled as at present. It was proposed that there should be control of coach services by road service licences to be issued by the Traffic Commissioner.

The reason for not appointing two other Commissioners in London, as was done elsewhere, was that the local authorities were represented on the London Traffic Committee. Omnibuses would still have to be licensed and would be subject to the provisions of the London Traffic Act, but they would not require road-service licences except outside the Metropolitan area. All public service vehicles, except omnibuses, would require the road-service licences issued by the Traffic Commissioner.

After some discussion the clause was agreed to.

An amendment was moved by Colonel Ashley that the operation of Part II, which establishes compulsory third-party insurance, should be limited to three years, with a view either to an amending Bill being introduced if found necessary, or the insurance provisions being continued under the Expiring Laws Continuance Act. The proposal was negatived by 20 votes to 12.

THE BILL PASSES THROUGH COMMITTEE.

At Thursday's sitting Col. Howard-Bury moved amendments for the purpose of simplifying the system of speed limits and reducing their number. He pointed out that the specified speeds were six in number—namely, unlimited for private cars, and for other classes of vehicles rates of 30 miles, 20 miles, 16 miles, 8 miles and 5 miles an hour, and he proposed that the respective speeds should be only three in number. Very great difficulties would be thrown on the police in differentiating between the different types of vehicles. He proposed that the speed limit should be removed on commercial and passenger vehicles of less than 2½ tons in weight unladen if fitted with pneumatic tyres and not drawing a trailer; and that the limit should be 20 m.p.h. for vehicles drawing trailers and with solid tyres.

After discussion the amendments were withdrawn with the exception of the proposal that the speed limit for vehicles over 2½ tons should be raised from 30 to 35 miles an hour and this was negatived by 19 votes to 8.

Colonel Ashley pointed out that the real trouble was that the schedule could not be amended by Order.

The Minister of Transport invited members to co-operate with the Ministry with a view to simplifying the schedule of speeds, but said that he thought they would be driven to the conclusion that the schedule should remain as it stood.

Agreement was expressed with a suggestion by Lord Erskine that a clause should be proposed on the report stage to empower the Minister, subject to the consent of Parliament, to vary the schedule.

THE OMNIBUSES BILL.

The Committee, having finished the Schedules, considered the Omnibuses Bill, the object of which is to give local authorities possessing transport services the power to extend these without application to Parliament, and agreed, after discussion, to incorporate its provisions in the Road Traffic Bill.

Mr. Morrison, who had moved a number of amendments to meet objections taken to these provisions, said local authorities would now obtain freedom to improve their transport services without costly proceedings in promoting Bills. He believed this would result in valuable co-ordination of transport.

This concluded the sitting and the Road Traffic Bill, as amended, was ordered to be reported to the House. Our résumé of the proceedings is from " The Times " report.

GERMAN VISIT TO TROLLEYBUS SYSTEMS.

A deputation of Burgomeisters from the Rhineland, accompanied by their technical advisers, came to England during the week ended May 24 to inspect the trolleybus systems of Wolverhampton, Nottingham, Chesterfield and Hastings. At Wolverhampton they were received by the Mayor (Councillor Alan Davies), chairman of the Transport Committee; the Deputy Mayor (Alderman Wood), and Mr. C. Owen Silvers, general manager of Wolverhampton Corporation Transport undertaking. In August next a trial service of trolleybuses will be in operation between Mettmann and Gruiten, near Dusseldorf. Idar and Oberstein are interested in a probable extension, but preparatory to definite steps being taken English experience of this method of transit is being tested. The visitors were entertained at lunch by the Mayor, who briefly described the change over at Wolverhampton from tramways, and emphasised the silence, easy acceleration, speed and freedom from smell or vibration of the trolleybus. The whole fleet, he said, was being operated at about 10½d. per car mile. The easy-moving trolleybus was an undoubted attraction; on one route there was an increase of 68 per cent. over the passengers by tramcar.

TROLLEYBUS PROPOSALS.

A Select Committee of the House of Lords considered, on Tuesday and Thursday, a Bill promoted by the Torquay and Paignton Electric Traction Co. to abandon tramways and substitute trolleybuses in these towns. Mr. Craig Henderson, K.C., for the promoters, said that to lessen traffic congestion Torquay Corporation suggested that the company should run trolleybuses. The company decided, with the approval of the Corporation, to convert their whole system, provided they could get reasonable protection for their capital. It was therefore proposed to postpone from 1935 to 1951 the date at which the municipality might purchase the undertaking, and to make competitive omnibus services along the tramway routes unlawful, unless they had a licence at present. The Mayor of Torquay and other witnesses gave evidence in support of the scheme.

The Local Legislation Committee of the House of Commons has passed the clauses of the Bill in which Birkenhead Corporation sought powers to convert the tramways into a trolleybus system. Mr. Cyril Clarke, the tramways manager, stated that some twenty Corporations had obtained trolleybus powers. The Committee gave borrowing powers to the extent of £17,000 for the provision of new omnibuses, and sanctioned a fare of three halfpence per mile on omnibuses and trolleys.

OMNIBUS DEMONSTRATION AT HASTINGS.

At the annual Congress of the Tramways, Light Railways and Transport Association to be held at Hastings on June 11 to 13 there will be a demonstration of motor and trolley omnibuses. This will take place at 2.30 p.m. on June 12 at the rear of the White Rock Pavilion.

The following is a list of the vehicles that will be demonstrated: Albion, 32-seat omnibus; Auster, Ltd., transport vehicle fitted with various accessories; Associated Equipment Co., latest type single-decker; Bristol, demonstration omnibus; Crossley, one vehicle; Daimler, 32-seat single-deck and 50-seat double-deck omnibuses; English Electric Co., trolleybus; Gilford Motor Co., luxury saloon body and municipal omnibus body; Guy, two vehicles; Karrier, 40-seat 6-wheel omnibus; Leyland, single-deck and double-deck omnibuses; Peters, one vehicle; Chas. Roe, 32-seat single-deck omnibus; Thornycroft, 26-seat " B. C. Forward " 6-cylinder saloon; Tilling-Stevens, two vehicles; Vulcan, 6-cylinder 50-seat double-deck and 4-cylinder 32-seat omnibuses; R. Garrett & Sons, trolleybus; General Motors, one vehicle; Sunbeam, one vehicle.

L.C.C. TRAMWAY MATTERS.

FIFTY NEW CARS FOR THE LEYTON SERVICE.

At Tuesday's meeting of the London County Council a supplemental agreement was adopted for the continued working of the Leyton Corporation's tramways as part of the Council's system. The agreement will supplement the main agreement which expires on June 30, 1931, and it is proposed to extend it to June 30, 1956. Leyton Corporation is to supply 50 new tramcars 25 to be ready for service by July 1, 1931, and the remainder by July 1, 1932. The existing cars are to be withdrawn as the new ones are placed in service. The cost of the new cars will be added to the capital account. The supply of electricity furnished by Leyton Corporation is to be increased, and the Corporation is to provide and instal a traverser at its tramways depot by June 30, 1931.

FINANCIAL.

The Electric Construction Co. reports net profit of £14,874, against £8,739 and the year's dividend is maintained at 5 per cent.

London General Omnibus Debentures.—Unanimous approval was given at a meeting of debenture-holders on May 26 to a proposed increase of £1,500,000 in the debenture stock of the London General Omnibus Co.

Swansea Improvements and Tramways Co.—For 1929 the revenue amounted to £135,062, a decrease of about £1,500. The surplus available is £9,865, and £5,185 is brought in from the previous account. The dividend on ordinary shares is 6 per cent. and £4,650 is carried forward.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended May 28 amounted to £83,281, a decrease of £585 compared with the corresponding week of last year. The route length was 165.60 miles, as compared with 166.29 a year ago. From April 1 (the commencement of the financial year) to May 28 (8 2-7 weeks), the total receipts were £688,249, a decrease of £5,141.

Municipal Transport Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended May 10 give total receipts of £416,220, or £6,102 more than in the corresponding week of last year. The aggregate receipts for six weeks amounted to £2,491,282, an increase of £87,499 over the corresponding period of last year.

Manchester Corporation Transport.—The total traffic revenue for the year 1929-30 amounted to £2,088,446, compared with £2,029,196 the previous year—an increase of £59,250. The number of passengers was 350,716,721, compared with 343,027,475, an increase of 7,689,246. The receipts from the tramways increased by £13,449, and the passengers increased by 3,471,428, equal to 1.08 per cent. Motor-omnibus receipts rose by £45,801, with an increase of passengers of 4,217,821, equal to 21 per cent.

Digitized by Google

MISCELLANEOUS NEWS AND NOTES.

The L.M.S. Railway has made a proposal to acquire the Glasgow General Omnibus and Motor Services, Ltd.

Purchase of Used Cars.—Dover Corporation has purchased used tramway rolling stock from Birmingham Corporation at a cost of £800.

Peterborough Electric Traction Co. is replacing the tramcars with double-deck covered omnibuses, and the cars will be withdrawn by the end of the summer.

Illuminated Car at Newcastle.—An illuminated tramcar was a feature of a city carnival held at Newcastle-on-Tyne on May 24 in aid of the Cancer Campaign.

Passenger Shelters.—Hull tramways manager has been instructed to provide passenger shelters on the Anlaby-road extension and at the Holderness-road terminus.

Glasgow Omnibus Extension.—Glasgow Transport Department proposes to open a number of new omnibus routes in the city. There are now 180 double-deck omnibuses, and 60 more are expected within a few weeks.

Swansea Repair Depot Scheme.—The General Purposes Committee of Swansea Corporation has appointed a sub-committee to report on the steps required to be taken for the provision of a repair depot for the authority's motor vehicles.

Stop Lights.—The experiments by Birmingham Tramways and Omnibus Department in the use of automatic stop lights for tramcars are being continued. An automatic stop light is being fitted to every new omnibus put on the road.

Montevideo Tramways Company's action against the municipality for damages has been upheld by the High Court. During the tramway strike in 1922 the municipal authorities forcibly occupied the company's premises and met the strikers' demands with the company's money.

Through Cars at Southend.—Another improvement instituted on the Southend Corporation Tramways by Mr. Ronald Fearnley, the engineer and general manager, is a service of through cars on several routes. During a trial period a penny fare is being charged between Milton-road and Bournemouth Park-road.

An Offer to Keighley Corporation.—It is stated that an offer has been received by Keighley Corporation from the West Yorkshire Road Car Co. for the Corporation's transport undertaking. The Tramways Committee has not yet considered the matter. The Corporation has 30 omnibuses and 14 trolleybuses.

L.N.E.R. Electrification Scheme.—Negotiations have been opened between the London and North-Eastern Railway and the Government Development Act Committee for a grant towards the cost of electrification of the London suburban lines. The length to be electrified is 60 miles and the estimated cost is £3,700,000, plus £650,000 for widening three tunnels.

Reported Voluntary Co-ordination in London.—It is understood that there is no authority for a report, published in daily newspapers this week, that revised omnibus services on the route from Morden to London are being introduced as a result of consultation with the Ministry of Transport and the L.C.C. with a view to co-ordinating the tramway and omnibus services.

Foremen's Wages at Huddersfield. — The sub-committee of Huddersfield General Purposes Committee having considered the applications made by the foremen in the tramways and omnibus department for an agreed scale of wages, for improved conditions of service and inclusion in the superannuation scheme, stated that they were unable to recommend the Council to take any action.

British Enterprise in the Near East.—Whitehall Electric Investments, Ltd., have completed negotiations whereby the complete control of the electric light and power services throughout Athens, Piræus, and other suburbs will pass into British hands. Existing electric tramway, railway and omnibus services will be extended and reconditioned. It is understood that the work will call for a large expenditure of capital.

Scottish Tramways and Transport Association.—At the eighth annual conference of this Association, held on May 23 and 24, the following office-bearers were appointed for the ensuing year: President, Mr. L. Mackinnon, Glasgow; vice-president, Mr. F. A. Fitzpayne, Edinburgh; secretary and treasurer, Mr. Robert Watson, Edinburgh; members of Council: Mr. J. L. Gunn, Aberdeen; Mr. W. Grant, Ayr; Mr. D. P. Morrison, Dundee; Colonel H. Dalton Henderson, Perth; Mr. H. C. Babb, Musselburgh; Mr. W. T. Dawson, Wemyss; and Mr. J. H. Shepherd, Dunfermline.

Weight Reduction of Tramcars.—A new type of 4-wheel tramcar put into service by Manchester Corporation Transport Department has been reduced in weight to 11 tons 1 cwt. by the use of duralumin in the under frame and the body supports and by careful design throughout. It seats sixty-two passengers. The double-deck top-covered body was built in the car works of the department. In addition to permanent ventilation, frameless half-drop windows, supplied by G. D. Peters & Co., Ltd., and individually operated, are provided. Lifeguards of the Hudson & Bowring type and Phillipson sideguards are fitted. There are two motors, each of 50 h.p., of the M.V. 105 type, supplied by Metropolitan Vickers, Ltd., and British Thomson-Houston B510 controllers. A magnetic track brake is fitted for hilly routes. The hand brake is a radical departure from standard practice, and is known as the "Tong." This brake has proved very successful, and it has been decided to adopt it on the forty cars which are to be built. It is supplied by the Peckham Truck and Engineering Co., Ltd. The method of body construction is novel, and although the weight is very low, appearance and detail finish have not been in any way sacrificed.

A Correction.—In the advertisement of the Park Royal Coachworks, Ltd., which appeared in THE TRAMWAY AND RAILWAY WORLD of May 15, the line "In voluntary liquidation" was inserted in error. The line related only to Hall, Lewis & Co., to whom Park Royal Coachworks, Ltd., are successors at Abbey-road, Park Royal, London, N.W.10.

Cheaper Fares at Sheffield.—On June 1 there will be certain reductions in the tramway fares in Sheffield, and it is claimed that the city will then have the cheapest service in the country. It will be possible to travel on one route 5 miles 381 yards for 1½d., and taking the longest routes across the city, 9 miles 821 yards may be travelled for 3d. This is considered to be cheaper than any other means of regular transport. Mr. A. R. Fearnley, general manager of the tramways and motors, has stated that the Tramways Committee hope that the reduction will bring about increased travel, so that there may be some compensation for the loss of £48,000 a year in revenue expected from the reductions.

London Tube Extension.—The House of Lords' Committee presided over by Lord Hardinge of Penshurst, on Tuesday sanctioned the Bill of the London Underground electric railway companies for extension of the tube railway from Finsbury Park to Cockfosters, on the northern boundary of Middlesex, near Barnet. Mr. F. J. Wrottesley, K.C., continuing his address for the London & North-Eastern Railway, opposing the Bill, said the new line would enable the Underground Group to divert a large number of omnibuses to compete with the L.N.E.R. elsewhere. By the suspensory clause put forward the L.N.E.R. pledged themselves to electrify, within three years, 60 miles of railway compared with the 7½ miles of tube. Their scheme would serve a population of 700,000, while the tube would serve only 240,000. "Modern Transport" states that if the Royal Assent is given to the Bill quickly, tenders will be invited by June 15, and be returnable by July 15, construction to start not later than September 1.

Omnibus Extension in Manchester.—At a meeting of Manchester Transport Committee on Tuesday it was decided to ask the Council to approve the conversion of Bradford-road tramway route to an omnibus service and to augment the 53 circular route, which was recently converted. Mr. R. Stuart Pilcher, general manager, reported that the Bradford-road route has a route mileage of nearly 3½, the receipts are £11,188 per annum, and the rate earned per mile is 16.13d. The track is 27 years old and requires to be renewed at a cost of £7,400. The route has the disadvantage of containing 1,237 yards of single line and loops, which means that a more efficient service could be provided by omnibuses. Reporting on the 53 circular route, Mr. Pilcher says that both the total receipts and the receipts per mile have shown a substantial increase. At the end of the first week passengers increased by 36,976, and receipts by £212. For the week ended May 11 the increases were 43,669 in passengers, £336 in receipts, and 1.12d. per mile. In order to provide fully for development, he recommends the acquisition of 15 additional omnibuses for the route. Ten omnibuses, in addition to the original 60, have already been running each evening owing to the increase in traffic, and ten will be required for the Bradford-road route. A total of 30 omnibuses will be needed, costing £1,685 each.

PERSONAL.

Mr. Norman Rylance, assistant to the traffic superintendent, Bolton Corporation Tramways, has been appointed traffic superintendent of Wigan Tramways at a salary of £300 per annum.

Mr. H. Nimmo, electrical inspector and adviser to the Government of Burma, has been appointed chief engineering inspector of the Electricity Commission, in succession to Colonel T. C. Ekin, who has retired under the age limit.

Mr. H. G. Godsmark, assistant rolling stock engineer of Nottingham Corporation Tramways, has been appointed assistant manager. He is 33 years of age and was educated at London University College and Loughborough Technical College. Mr. Godsmark went to Nottingham twelve months ago from Manchester, where he had been chief technical assistant in the tramways department. He was there for four years and was previously technical assistant in connection with the London County Council tramways. During the war he served with the Royal Engineers.

The late **Mr. Ludwig Breitmeyer,** chairman of Lisbon Electric Tramways, Cape Electric Tramways, and Cape Town Consolidated Tramways & Land Co., and a director of other undertakings, left £939,843 (net £901,186).

CONTRACTS.

Ransomes, Sims & Jefferies, Ltd., have received an order from Ipswich Corporation for three trolleybuses at £4,344.

Siemens Electric Lamps & Supplies, Ltd., have a contract from the Air Ministry for a large quantity of Siemens automobile type lamps.

Grimsby Corporation has accepted the tender of Forest City Electric Co., Ltd., Manchester, for the supply of traffic control signals at £458.

Glasgow Transport Committee has accepted the following tenders: Rail filing machine, W. C. Yuille & Co., Ltd.; degreasing plant, Fox, Ray & Co., Ltd.; special track work, Hadfields, Ltd.

York Transport Committee has recommended the following tenders: Crossley Motors, Ltd., three omnibus chassis, at £795 each; Leyland Motors, Ltd., three chassis, at £813 5s. each; C. H. Roe, Ltd., six bodies, at £475 each.

Digitized by Google

Croydon Tramways Committee has accepted the tender of Dorman, Long & Co., Ltd., for the supply of 106 tons of tramway rails at £10 11s. 9d. per ton.

The Underground Electric Railways Co. has provisionally ordered electrical equipment for 62 new cars to be supplied by the British Thomson-Houston Co., Ltd., and motors by the General Electric Co., Ltd.

Henry Miller & Co., Ltd., have received a contract from the South Indian Railway Co., Ltd., for the supply of hydraulic lifting plant required at Madras for the purpose of demounting electric coach bodies in connection with the electrification scheme.

The Equipment & Engineering Co., Ltd., have an order from Pontypridd Urban Council for an H.8 high-pressure air compressor for pneumatic tyre inflation. Redcar Services, Tunbridge Wells, have purchased one of the Equipment & Engineering Co.'s type T.A. electro-magnetic crack detectors.

Bristol Tramways and Carriage Co., Ltd., have the following "repeat" orders for "Bristol" passenger vehicles: Frank Hall and Co., Broughton Astley, Leicester, one 31-seat omnibus on 4-cylinder chassis; Rotherham Corporation, five 4-cylinder 4-wheel passenger chassis; Aberdare Urban Council, one 32-seat single-deck omnibus on 4-cylinder chassis.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

Name.	Week ended	Latest Return. 1929	1930	+ or —	Aggregate. Wks.	1930	+ or —
		£	£	£		£	£
Aberdare U.D.C.	May 20	630	521	— 109	7	4,084	— 90
„ Motor Buses	„ 20	232	276	+ 44	7	2,068	+ 191
„ Total	„ 20	862	797	— 65	7	6,152	+ 101
Aberdeen Corp.	„ 21	4,841	4,825	— 16	50½	249,295	+ 19,226
Ashton-u-Lyne Corp.	„ 24	1,070	851	— 219	8	6,828	— 538
„ Motor Buses	„ 24	501	482	— 109	8	4,022	— 29
„ Trolley Buses	„ 24	310	263	— 47	8	2,179	— 113
„ Total	„ 24	1,971	1,596	— 375	8	13,029	— 680
Ayr Corporation	„ 24	537	472	— 65	1¼	639	— 215
Barrow Corporation	„ 24	833	521	— 312	8	4,387	— 512
„ Motor Buses	„ 24	407	358	— 49	8	2,904	+ 554
„ Total	„ 24	1,240	879	— 361	8	7,291	+ 42
Belfast City	„ 23	11,758	11,430	— 328	7½	87,409	+ 3,950
„ Motor Buses	„ 23	1,158	1,370	+ 212	7½	10,375	+ 2,160
„ Total	„ 23	12,916	12,800	— 116	7½	97,784	+ 6,110
Birkenhead Corp.	„ 25	1,894	1,605	— 289	8	12,447	— 1,041
„ Motor Buses	„ 25	3,931	3,433	— 498	8	26,571	+ 999
„ Total	„ 25	5,825	5,038	— 787	8	39,018	— 42
Birmingham Corp.	„ 20	27,401	27,079	— 322	7	189,752	+ 1,349
„ Motor Buses	„ 20	12,574	15,504	+ 2,930	7	108,034	+ 23,090
„ Trolley Buses	„ 20	574	567	— 7	7	4,025	+ 185
„ Total	„ 20	40,549	43,150	+ 2,601	7	301,811	+ 24,624
Blackburn Corp.	„ 21	2,378	1,836	— 542	7¼	13,543	— 990
„ Motor Buses	„ 21	Nil	331	+ 331	7¼	2,412	+ 2,412
„ Total	„ 21	2,378	2,167	— 211	7¼	15,955	+ 1,422
Bradford Corporation	„ 24	16,496	13,934	— 2,562	8	109,688	— 8,640
Brighton Corporation	„ 25	2,831	2,407	— 424	6¾	19,125	+ 517
Burnley Corporation	„ 24	3,356	2,681	— 675	—	...	—
„ Motor Buses	„ 24	694	667	— 27	—	...	—
„ Total	„ 24	4,050	3,348	— 702	...	...	—
Burton-on-Trent Corp.	„ 25	845	805	— 40	8	6,751	+ 3,349
Bury Corporation	„ 25	2,325	1,880	— 445	7½	14,592	— 2,863
„ Motor Buses	„ 25	416	1,141	+ 725	7½	8,476	+ 5,534
„ Total	„ 25	2,741	3,021	+ 280	7½	23,068	+ 2,671
Cardiff Corporation	„ 24	8,859	7,490	— 1,369	7½	60,082	+ 1,212
Chatham and District	„ 22	1,283	1,092	— 191	20	21,702	+ 1,023
Chester Corporation	„ 25	463	Nil	— 463	8	Nil	— 3,683
„ Motor Buses	„ 25	Nil	604	+ 604	8	5,166	+ 5,166
„ Total	„ 25	463	604	+ 141	8	5,166	+ 1,483
Chesterfield Corp.	„ 28	1,878	1,856	— 22	8	14,270	+ 218
Colchester Corp.	„ 28	541	563	+ 22	9	4,841	+ 356
Colne Corporation	„ 28	719	766	+ 47	8	5,863	— 129
Coventry Corporation	„ 25	2,633	1,994	— 639	8	16,529	— 1,131
„ Motor Buses	„ 25	1,934	1,756	— 178	8	14,594	+ 1,878
„ Total	„ 25	4,567	3,750	— 817	8	31,123	+ 747
Darlington Corp.	„ 24	1,043	998	— 45	7½	8,229	+ 773
Derby Corporation	„ 24	2,889	2,394	— 495	8	19,122	— 536
„ Motor Buses	„ 24	702	929	+ 167	8	7,020	+ 1,968
„ Total	„ 24	3,651	3,323	— 328	8	26,148	+ 1,432
Dover Corporation	„ 24	441	373	— 68	8	2,924	+ 60
Dundee Corporation	„ 6	3,410	3,441	+ 31	50½	174,499	+ 6,107
East Ham Corp.	„ 24	2,464	2,306	— 158	7½	17,989	+ 399
Edinburgh Corp.	„ 15	7,512	9,612	+ 2,100	52¼	742,699	+ 28,840
„ Motor Buses	„ 15	1,743	2,337	+ 594	52¼	181,032	+ 20,231
„ Total	„ 15	9,255	11,949	+ 2,694	52¼	923,731	+ 49,071
Exeter Corporation	„ 28	867	818	— 49	9	6,804	— 512
Glasgow Corporation	„ 17	45,538	45,224	— 314	50	2,220,447	+ 33,882
„ Motor Buses	„ 17	4,999	3,420	— 1,579	50	332,344	+ 157,571
„ Total	„ 17	50,537	48,644	— 1,893	50	2,552,791	+ 191,453
Gloucester Corp.	„ 21	673	661	— 12	7½	5,027	+ 1,132
Grimsby Corporation	„ 24	1,562	1,442	— 120	8	11,681	+ 1,358
Halifax Corporation	„ 20	5,795	5,066	— 729	7¼	36,563	+ 2,909
Huddersfield Corp.	„ 24	7,808	6,152	— 1656	8	50,223	— 2435
Hull Corporation	„ 24	6,103	5,712	— 391	8	45,802	— 366
„ Motor Buses	„ 24	1,425	1,403	— 22	8	11,059	+ 871
„ Total	„ 24	7,528	7,115	— 413	8	56,861	+ 505
Ilford Corporation	„ 24	1,582	1,529	— 53	7½	11,762	+ 329
Ipswich Corp. Trol.Bus	„ 24	1,422	1,291	— 131	7½	10,052	+ 478
Isle of Thanet	„ 21	989	544	— 445	20½	8,435	— 514
Kilmarnock Corp.	„ 10	469	472	+ 3	51¼	24,636	+ 1,837
Lancashire Un.	„ 18	2,410	2,107	— 303	19½	42,902	— 1,868
„ Motor Buses	„ 18	4,449	4,686	+ 237	19½	92,531	+ 14,392
Leeds Corporation	„ 24	22,327	20,075	— 2,252	7¼	153,664	+ 2,795
Leicester Corp.	„ 24	8,897	8,380	— 517	8	65,181	+ 1,193
Lincoln Corp.	„ 18	949	883	— 66	7	6,352	+ 91
Liverpool Corp.	„ 24	32,475	30,033	— 2,442	7½	232,477	+ 2,148
London County Coun.	„ 28	83,866	83,281	— 585	8¼	688,249	— 5,141
Luton Corporation	„ 21	448	412	— 36	7½	3,188	+ 250
Maidstone Corp.	„ 22	256	Nil	— 256	7½	Nil	— 2,004
„ Motor Buses	„ 22	297	260	— 37	7½	2,075	— 41
„ Trolley Buses	„ 22	319	564	+ 245	7½	4,876	+ 2,511
„ Total	„ 22	872	824	— 48	7½	6,951	+ 466
Manchester Corp.	„ 17	35,880	32,268	— 3,612	7	218,276	— 19,560
„ Motor Buses	„ 17	4,857	8,302	+ 3,445	7	56,204	+ 23,989
„ Total	„ 17	40,737	40,570	— 167	7	274,480	+ 4,409
Middlesbrough Corp.	„ 20	1,144	1,024	— 120	7¼	7,723	— 496
„ Motor Buses	„ 20	577	537	— 40	7¼	3,989	+ 386
„ Total	„ 20	1,721	1,561	— 160	7¼	11,712	— 110

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS—*Continued.*

Name.	Week ended	Latest Return. 1929	1930	+ or —	Aggregate. Wks.	1930	+ or —
		£	£	£		£	£
Newcastle-on-Ty.Corp.	May 24	10,598	8,665	— 1,931	7¾	67,767	— 5,791
„ Motor Buses	„ 24	2,647	2,574	— 73	7¾	19,619	+ 4,013
„ Total	„ 24	13,243	11,239	— 2,004	7¾	87,386	— 1,778
Newport Corporation	„ 17	750	759	+ 9	7	5,607	+ 732
„ Motor Buses	„ 17	1,728	1,596	— 102	7	11,204	+ 102
„ Total	„ 17	2,478	2,325	— 153	7	16,811	+ 834
Northampton Corp.	„ 23½	1,174	1,054	— 120	7¾	8,465	— 507
„ Motor Buses	„ 23	834	705	— 129	7¾	5,268	+ 760
„ Total	„ 23	2,008	1,759	— 249	7¾	13,733	+ 253
Nottingham Corp.	„ 22	7,679	5,865	— 1,814	7¾	42,782	— 6,712
„ Motor Buses	„ 22	2,520	3,309	+ 789	7¾	23,963	+ 7,079
„ Trolley Buses	„ 22	608	1,211	+ 603	7¾	8,879	+ 4,391
„ Total	„ 22	10,807	10,385	— 422	7¾	75,624	+ 4,758
Oldham Corporation	„ 24	3,612	3,353	— 259	9	30,349	— 2,303
„ Motor Buses	„ 24	2,344	1,929	— 415	9	17,916	— 476
„ Total	„ 24	5,956	5,282	— 674	9	48,265	— 2,779
Plymouth Corp.	„ 24	3,764	3,358	— 406	7¾	28,094	— 463
„ Motor Buses	„ 24	1,903	2,239	+ 336	7¾	18,184	+ 3,764
„ Total	„ 24	5,667	5,597	— 70	7¾	46,278	+ 3,301
Portsmouth Corp.	„ 24	7,888	6,429	— 1,459	8	52,077	— 5,570
Preston Corporation	„ 21	2,017	1,642	— 375	7¾	12,118	— 799
„ Motor Buses	„ 21	577	515	— 62	7¾	3,711	+ 137
„ Total	„ 21	2,594	2,157	— 437	7¾	15,829	— 662
Rawtenstall Corp.	„ 25	846	652	— 194	7¾	5,655	— 1,239
„ Motor Buses	„ 25	577	768	+ 191	7¾	5,417	+ 1,244
„ Total	„ 25	1,423	1,420	— 3	7¾	11,072	+ 5
Reading Corporation	„ 22	1,697	1,378	— 319	7	10,521	— 542
„ Motor Buses	„ 22	1,123	934	— 189	7	7,166	+ 595
„ Total	„ 22	2,820	2,312	+ 508	7	17,687	+ 53
Rochdale Corp.	„ 24	3,321	2,690	— 631	...	21,337	— 2,648
„ Motor Buses	„ 24	1,930	1,449	— 481	...	12,425	+ 545
„ Total	„ 24	5,251	4,139	— 1,112	...	33,762	— 2,103
Rotherham Corp.	„ 26	3,051	2,720	— 331	8	22,408	+ 955
Salford Corporation	„ 25	12,000	11,383	— 617	7¾	89,112	+ 720
Sheffield Corp.	„ 24	23,375	20,771	— 2,604	7¾	166,597	— 47
Southampton Corp.	„ 21	3,833	3,249	— 584	8	24,429	+ 398
„ Motor Buses	„ 21	908	835	— 73	8	6,378	+ 1,445
„ Total	„ 21	4,741	4,084	— 657	8	30,807	+ 1,843
Southend-on-Sea Corp.	„ 28	2,161	1,866	— 295	8¼	15,787	— 1,308
„ Motor Buses	„ 28	154	248	+ 94	8¼	2,100	+ 920
„ Total	„ 28	2,315	2,114	— 201	8¼	17,887	— 388
Southport Corp.	„ 24	1,793	1,224	— 569	7¾	9,772	— 285
„ Motor Buses	„ 24	551	400	— 151	7¾	2,080	+ 242
„ Total	„ 24	2,344	1,624	— 720	7¾	12,752	— 43
St. Helens Corp.	„ 20	2,307	2,040	— 267	7¼	14,510	+ 1,068
Sunderland Corp.	„ 27	2,470	2,335	— 135	8	19,336	+ 212
„ Motor Buses	„ 27	153	462	+ 309	8	3,645	+ 3,172
„ Total	„ 27	2,623	2,797	+ 174	8	22,981	+ 3,384
Swindon Corp.	„ 21	917	906	— 11	7¾	7,012	+ 1,978
Wallasey Corp.	„ 24	1,735	1,161	— 574	7½	9,276	— 920
„ Motor Buses	„ 24	2,663	2,142	— 521	7½	16,549	+ 1,565
„ Total	„ 24	4,398	3,303	— 1,095	7½	25,825	+ 645
Walsall Corporation	„ 18	3,532	3,399	— 133	7	24,748	+ 1,040
Walthamstow Corp.	„ 24	2,915	2,452	— 463	7½	18,975	— 278
Warrington Corp.	„ 22	902	871	— 31	8	7,121	+ 25
„ Motor Buses	„ 22	442	483	+ 41	8	3,953	+ 441
„ Total	„ 22	1,344	1,354	+ 10	8	11,074	+ 466
West Ham Corp.	„ 22	6,436	6,184	— 252	7½	46,082	+ 662
Wolverhampton Corp							
„ Motor Buses	„ 18	2,917	2,348	— 569	7	16,803	— 2,696
„ Trolley Buses	„ 18	3,303	3,457	+ 154	7	24,632	+ 2,327
„ Total	„ 18	6,220	5,805	— 415	7	41,525	— 369
York Corporation	„ 21	1,000	957	— 133	8	7,306	+ 237
„ Motor Buses	„ 21	392	485	+ 93	8	3,644	+ 959
„ Trolley Buses	„ 21	56	Nil	— 56	8	Nil	— 312
„ Total	„ 21	1,538	1,442	— 96	8	10,950	+ 884

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

Name.	Week or M'th.	Latest Return. 1929	1930	Aggregate. Wks. or M's	1930	In. or Dec.
Anglo-Argentine	May 27	£80,243	£86,372	21 w	£1,772,273	— £80,477
Brazilian Traction $	Apr.	4,042,145	4,127,492	4 m	15,835,315	+ 216,078
British Columbia $	Mar.	1,243,592	1,258,375	9 m	11,110,713	+ 567,360
Buenos Aires Lacroze	May 25	11,624	11,786	47 w	552,509	— 42,623
Burma E. Sup. Co. Rs.	Apr.	64,744	65,482	9 m	577,208	— 22,269
Calcutta ... Rs.	May 24	122,699	103,771	20½ w	2,414,225	— 256,789
Cape Town ...	Apr.	29,244	27,500	...	...	...
Carthagena & Herrerias	Apr.	1,063	905	4 m	4,545	+ 925
Durban ...	Mar.	24,442	23,662	8 m	190,536	+ 1,460
East India ...	Mar.	3,708	3,601	9 m	34,120	+ 571
Kalgoorlie ...	Feb.	1,433	1,437	2 m	2,981	— 73
Madras (2 weeks) Rs.	May 15	44,357	45,842	18 w	417,745	+ 28,138
Para ...	Apr.	15,060	15,564	5 m	73,211	+ 785
Port Elizabeth ...	Apr.	7,877	7,521	...	...	...
Rangoon ... Rs.	Apr.	120,855	148,215	4 m	608,025	+ 134,789
Shanghai ... $	Apr.	336,624	308,840	4 m	1,372,562	+ 82,225
Singapore ... $	Apr.	131,000	137,000	7 m	935,000	+ 108,000
Winnipeg ... $	Mar.	572,492	571,157	3 m	1,767,705	+ 16,352

RAILWAY RECEIPTS.

21st Week ended May 24th	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week.	Inc. or Dec. to Date.
G.W.R.	211,000	— 55,000	340,000	+ 66,000	551,000	+ 11,000	— 325,000
L.M.S.R.	464,000	— 140,000	776,000	+ 151,000	1,240,000	+ 11,000	—1,111,000
L.N.E.R.	313,000	— 81,000	652,000	+ 70,000	965,000	— 11,000	— 467,000
S.R.	290,000	— 58,000	107,000	+ 9,000	397,000	— 49,000	— 152,000
Totals	1,278,000	—334,000	1,875,000	+ 296,000	3,153,000	— 38,000	-2,055,000

ELECTRIC RAILWAYS.

Name.	Week Ended.	Latest Return. 1929.	1930.	+ or —	Aggregate. 1930.	+ or —
London Underground						
Common Fund Cos.	May 24	337,800	310,500	— 27,300	6,186,900	+ 422,400
Lond. & Sub. Group	„ 24	52,100	45,500	— 6,600	897,700	+ 74,400
Metropolitan Railway	„ 24	39,000	37,000	— 2,000	768,600	+ 19,200
Liverpool Overhead	„ 25	1,949	1,485	— 464	31,402	— 1,901
Mersey Railway ...	„ 24	4,253	4,404	+ 151	98,420	+ 2,791

Digitized by Google

THE
Tramway AND Railway World

FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.

Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates:

FOR THE UNITED KINGDOM—Twenty-five shillings per annum.

FOR ALL PLACES ABROAD—Twenty-five shillings per annum. Postage to Canada, 6s.; to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS

LONDON, JUNE 7, 1930.

A DEFENCE OF THE TRAMWAYS.

In some quarters any excuse is good enough to justify an attack on tramways, but we do not expect ill-informed pronouncements from the lips of a Judge of the High Court. It is satisfactory, therefore, that Alderman Banton, at the luncheon given to the Managers' Section of the Municipal Tramways and Transport Association at Leicester last week, challenged Mr. Justice MacKinnon's remarks at the hearing of a charge of manslaughter against a motorist at Manchester on May 19. The judge stated that more accidents occurred at tramcar stops than in any other place and that "trams are obsolete." Those who heard or read Alderman Banton's irrefutable arguments and facts will agree that such statements ought to be withdrawn. They do an injustice to a great branch of public service, and it is impossible to find any excuse for their utterance. Alderman Banton quoted Home Office figures of street accidents caused by mechanically-propelled vehicles, which show that last year of 6,017 fatal accidents only 111 were attributed to tramcars and trolleybuses; and of 120,248 non-fatal accidents only 6,198 were attributable to the tramcar. Similar low records are revealed for the past four years. No return shows the actual spots where these accidents happen, but observation and reports in the Press make it known that accidents at tramway stops are rare. Traffic at these places as a rule is slow, pedestrians are more careful than at less congested parts of the street, and motorists, with some lamentable exceptions, are considerate of other traffic at such points. If they are busy places it is because people want to travel by tramcar, but it is notorious that congestion is as bad and even worse in streets where there are no tramways. As to the tramways being obsolete, local authorities controlling some of the greatest undertakings in the country do not take this view. In recent issues we have chronicled the progress made by tramways both financially and in the provision of comfortable travel abreast of modern requirements. The London County Council, for instance, is about to place in service 150 new cars which will be as up to date as any public service vehicles on the roads. Glasgow, Leeds, Belfast, and other places are also spending large sums on new equipment. Only last week the chairman of the Swansea Improvements and Tramways Co. stated that at Swansea the substitution of omnibuses to meet the requirements of the seventeen millions of passengers carried by the tramways last year would be, if not impracticable, a most uneconomic proposition. In view of these well-known facts, it appears that Mr. Justice MacKinnon spoke more from prejudice than from knowledge.

GLASGOW CORPORATION TRANSPORT DEPARTMENT.

INCREASED RECEIPTS FROM TRAMCARS AND OMNIBUSES.

The financial year of the Glasgow Corporation Transport Department ended on May 31, and the following advance figures have been issued:—

	Tramway Section. *		Omnibus Section.		Subway Section.	
Car mileage	35,867,856	+ 662,782	5,565,616	+ 2,494,223	1,172,587	+ 145
Traffic Revenue	£2,312,741	+ £32,804	£349,232	+ £163,972	£92,791	— £3,633
Traffic Revenue per car mile	15.475d.	— .068d.	15.060d.	+ .58d.	18.992d.	— .75d.
Traffic Revenue per passenger	1.181d.	— .011d.	1.744d.	— .19d.	1.115d.	— .019d.
Passengers	470,020,925	+ 11,155,921	48,066,753	+ 22,846,043	19,969,185	— 430,352
Passengers per car mile ...	13.104	+ .070	8.636	+ .425	17.030	— .369

* The tramways have a total track length of 270.5 miles, an increase of .875 as compared with last year.

The figures were submitted to the Transport Committee on June 4 and much gratification was expressed at the successful result of the year's operation. It was claimed that the remarkable increase in the tramways traffic was due to the revival of public favour caused by the reconditioned cars. The expenditure accounts will not be ready for a week or two, but it is announced that a surplus will be available for the Common Good Fund.

TROLLEYBUS PROPOSALS.

The Select Committee of the House of Lords, with Lord Lucan as chairman, on May 28 approved the scheme in the Torquay and Paignton Tramways Company's Bill for the substitution of their tramcars by trolleybuses and the scrapping of the tramways. The scheme provides for the carrying out of the work within 18 months. The opposition of the Paignton Urban District Council, the Devon County Council, and the Torquay Citizens' League was heard, that for the local authorities being concerned with congestion in the main streets of Paignton, and their desire for the exclusion of the trolleybuses therefrom.

The Committee decided that the Bill should proceed, subject to certain clause matters.

Doncaster Town Council has decided to apply for powers to convert the Balby and Warmsworth tramway routes to the trolleybus system, and for an extension to Edlington, now served by omnibuses.

A deputation of Ashton Town Council will meet representatives of Wigan Corporation for a further interview on the proposals of the latter to run trolleybuses in the Ashton district.

The Hastings Tramways Co.'s Bill, seeking powers for additional trolleybus routes, has been approved by the Unopposed Bill Committee of the House of Lords.

In their report for 1929, just issued, the Mansfield and District Tramways Co. state that means for giving effect to the provisions of the Bill enacted in last session are receiving the consideration of the directors. The Bill gives a measure of protection against increased competition, and is conditional on the substitution of trolleybuses for the existing light railways within two years of the passing of the Act.

NEW L.C.C. TRAMCARS.

THE STANDARD 74-SEAT PULLMAN TYPE.

The first of the new fleet of 150 improved cars that the London County Council ordered some months ago has been delivered and was put in operation on June 5. These cars will replace 150 which have fallen below the present-day standard. Fifty of the new fleet will be used on the route which includes Dog Kennel-hill, Dulwich, one of London's steepest inclines. This type of body, which is to become standard, seats 74 passengers, one more than the present Pullman vehicle. All seats in the upper saloon are now fully upholstered, and the interior of this saloon is five inches wider, thus giving passengers more elbow room and a greater width of gangway. Ventilation has been improved, and the upstairs windows, provided by G. D. Peters & Co., Ltd., are horizontally divided and can be let down or pushed up by passengers. For these lights and the conductor's look-out windows non-splinter glass is used.

Digitized by Google

DEMONSTRATION OF OMNIBUSES AT HASTINGS.

The Tramways, Light Railways and Transport Association, as announced in a previous issue, has arranged for a demonstration of trolleybuses and petrol omnibuses and coaches in connection with the twenty-first Congress, which will meet at Hastings from June 11 to 13. The demonstration of vehicles will take place at 2.30 p.m., June 12, behind the White Rock Pavilion on the front. The vehicles to be demonstrated have been manufactured by companies who are members of the Association. The following is a list of makers and types of vehicles to be shown. Names of the representatives of the various firms are also given.

Maker and Type of Vehicle.	Representatives.
ALBION MOTOR CAR CO., LTD. "Viking Six" 32-seat omnibus	A. J. Simpson
ASSOCIATED EQUIPMENT CO., LTD. Single-deck omnibus	A. S. C. Chatty, D. E. Batty
AUSTER, LTD. Transport vehicle equipped with special accessories	Capt. P. Lane
BRISTOL TRAMWAYS & CARRIAGE CO., LTD. 26-seat all-weather Pullman tourer on "Bristol" 6-cylinder 4-wheel chassis	W. R. Churchill, W. Eastmond
CROSSLEY MOTORS, LTD. 32-seat 6-cylinder single-deck omnibus	Major S. V. Sippe, A. W. Hubble
DAIMLER CO., LTD. 26-seat single-deck sun saloon omnibus; 52-seat double-deck saloon service omnibus; 52-seat double-deck omnibus	Major M. G. Clapperton
ENGLISH ELECTRIC CO., LTD. Trolleybus—latest type A.E.C. and "English Electric" joint construction	J. L. Burton, A. W. Reed, H. H. Andrews
RICHARD GARRETT & SONS, LTD. Trolleybus	A. F. Bennett, C. M. Plane
GENERAL MOTORS, LTD. Omnibus	F. C. Laing
GILFORD MOTOR CO., LTD. Coach and omnibus	J. F. Flude
GUY MOTORS, LTD. "Conquest" 30-seat single-deck omnibus	S. Guy, S. Webb
KARRIER MOTORS, LTD. "Clipper" 40-seat six-wheel omnibus	G. Stratton
LEYLAND MOTORS, LTD. Single-deck omnibus; Double-deck omnibus	F. H. Blakeway
G. D. PETERS & CO., LTD. Demonstration omnibus with special equipment	H. B. White, A. C. Riley
CHAS. H. ROE, LTD. 32-seat single-deck omnibus	C. D. Hodgson, C. J. Roe
SUNBEAM MOTOR CAR CO., LTD. 32-seat single-deck omnibus	A. W. Riley
JOHN I. THORNYCROFT & CO., LTD. 26-seat saloon omnibus on six-cylinder chassis	Major T. C. Aveling, O.B.E.
TILLING-STEVENS MOTORS, LTD. "Express" type B.10.A.2 omnibus	Major F. W. Lown, M.C., T. B. Goodyer, O.B.E., H. W. Whitney
VULCAN MOTOR & ENGINEERING CO., LTD. "Emperor" 51-seat double-deck omnibus; "Prince" 32-seat single-deck omnibus	W. H. Keys

L.C.C. TRAMWAY MATTERS.

At Tuesday's meeting of the London County Council, the Highways Committee reported on an application for the payment of ropeway bonuses to all engineering employees at the central repair depot. A scale of bonuses was approved on April 3, 1928, and was applicable to employees engaged on a ropeway or similar kind of work. The Committee reported against payment of the full bonuses, but proposed a bonus of a penny an hour to certain employees.

The Highways Committee recommended that during the Whitsun recess, Mr. D. Davies and Miss Rosamond Smith be authorised to give instructions and sanction necessary expenditure, and that, with the chairman and vice-chairman of the Highways Committee, they should be authorised to open tenders where the estimated expenditure exceeds £1,000.

The Committee recommended that as from June 26 the rates of pay and bonus under the war allowance scheme for minor officials on the operative staff in the tramways department be consolidated, the rates being set out in a schedule in the report.

Tenders for additional truck-washing plant having been considerably higher than was anticipated, the Committee proposed to install an existing high-pressure pump and to carry out work essential for truck-washing experiments by direct employment of labour in the tramways department.

A further 150 tons of conductor rails are required, and it was recommended that a supplemental contract be made with the Frodingham Iron & Steel Co., Ltd., for the supply of 150 tons, additional to the 700 tons for which the tender was accepted in February at £7,232 10s.

The reports were adopted.

BERLIN WORLD POWER CONFERENCE.

The second World Power Conference will take place in Berlin from June 15 to 25, and it will be followed by a series of organised tours to visit power-stations, industrial undertakings and places of interest around Berlin and in various parts of Germany. The fee for the Conference is £2. Cook & Sons are co-operating with German tourist agencies as regards general tours and accommodation. The London offices of the British National Committee are at 63, Lincoln's Inn Fields, W.C.2. The first Conference, which met at the Wembley Exhibition in 1924, and was organised by Mr. D. M. Dunlop, was a most successful gathering, as was the similar Conference in Basle in 1926 on "Water Power," in London in 1928 on "Fuel," in Barcelona in 1929 on "Water Power," and in Tokyo last year on "Development of Power Resources." At the pending Berlin Conference, Mr. Dunlop will give an address on "Power in Civilisation," Prof. Eddington will lecture on "Sub-Atomic Energy," Prof. Sorrey on "Power Nationalisation," Prof. Einstein on "Physical Space," and there will be many other speakers.

THE MANAGERS' MEETING AT LEICESTER.

Friday, May 30, the concluding day of the annual meeting of the Managers' Section of the Municipal Tramways and Transport Association, proved one of the most interesting days that the managers have spent together. An early start was made from Leicester, and the members travelled to the Town Hall, Loughborough, in omnibuses of the Leicester Corporation, kindly provided by Mr. H. Pool, the General Manager. Mr. Harvey having read his exceedingly practical paper on "Some Aspects of Tramway Development," the party continued their journey to the works of the Brush Electrical Engineering Co., where they were received by Mr. W. Johnstone, Managing Director, Mr. Bretherton, Works Manager, and other officers of the company. A rapid tour of the works was made, and the time available was all too brief for an inspection of the many features which the visitors found of absorbing interest. The progress of manufacture of rolling stock was, however, traced from the splendid timber stores through various stages of construction of the tramcars and of the omnibuses with which the shops are well filled. Among the cars under construction, special attention was paid to one which the Brush Company are supplying to Ilford Corporation Tramways to the specification of the General Manager and Engineer. The car includes a number of interesting fittings which Mr. Harvey has found by practical experience to add to the comfort of passengers and the efficiency of operation. Other cars which were carefully inspected included those for West Ham Corporation, Birmingham Corporation and the Swansea and Mumbles Railway. The Birmingham car is notable for the marked reduction in weight that has been effected, while the Swansea car is one of the largest cars in the country, providing seats for over 100 passengers. Of the many omnibuses in various stages of construction space prevents further mention here. The attention of the visitors was also directed to the Flettner ventilator which was in operation, showing how quickly smoke could be cleared from an enclosed glass case. After a hasty inspection of the works, members were conveyed to the King's Head Hotel, where they were entertained at luncheon by Mr. W. Johnstone, of the Brush Company.

Subsequently the party returned to Leicester under pleasant conditions of weather, via Charnwood Forest and Bradgate Park, and on reaching Leicester visited the works of Messrs. N. Corah & Sons, who have one of the most up-to-date hosiery factories in the kingdom. After a tour of the works the visitors were entertained at tea, and each was presented with a souvenir. The works have been in the possession of the Corah family for over 100 years, but the buildings and equipment present a fine example of a modern factory, in which both efficiency and the comfort of the operatives have received due consideration. There are over 3,000 employees, and the visitors were struck by the spirit of contentment which pervades the establishment.

The arrangements for the meeting were under the direction of Mr. H. Pool, the General Manager of Leicester Corporation Tramways, who presided over the managers' deliberations, and received the cordial thanks of the visitors for the kindness and courtesy with which he provided for their comfort and enjoyment.

"ENGLISH ELECTRIC" TROLLEYBUSES.

The English Electric Company have received two additional important orders for trolleybuses from Bradford Corporation and from Messrs. Balfour, Beatty & Co. for the Nottinghamshire and Derbyshire Traction Company.

The order from Bradford is for 12 double-deck, top-covered vehicles, each having a seating capacity for 56 passengers. The chassis will be of the "English Electric" low-loading, three-axle type with air-operated brakes on all wheels, rheostatic braking also being included. The equipment will consist of a DK.122, 100 h.p. twin-type motor, fitted with roller bearings and "English Electric" contractor-type, foot-operated controller. This further repeat order from Bradford Corporation brings the total of trolleybuses supplied by the English Electric Company to this undertaking to 52 vehicles.

The order from Messrs. Balfour, Beatty for the Notts and Derby-Ilkeston routes is for six single-deck saloon-type "English Electric" trolleybuses, each having a seating capacity for 32 passengers, mounted on "English Electric" two-axle type chassis, with which is incorporated air-operated brakes on all four wheels and a system of rheostatic brakes is provided. The electrical equipment will consist of a DK.121, 60 h.p. motor, fitted with roller bearings, and "English Electric" contactor-type, foot-operated controller. These vehicles will have the main entrance door at the near side front and an emergency exit at the rear of the body.

Belfast Tramway Park.—Belfast Tramways Committee has arranged an attractive series of entertainments at Belle Vue, the Tramway Park. Special provision is made for entertaining children, who will be brought to and from the gardens at reduced fares. Mr. Wm. Chamberlain, the general manager, has been authorised to secure the services of popular entertainers and of a golf expert. Belle Vue is regarded as a revenue-earning medium, and it is increasing in popularity.

Digitized by Google

MISCELLANEOUS NEWS AND NOTES.

Colchester Transport Committee has obtained sanction to borrow £6,790 for the purchase of four additional omnibuses.

Rewards for Employees.—East Ham tramways employees who won the London Safety First Council's silver medal for five consecutive years of freedom from accidents will each receive a guinea from the Corporation.

Tests for Drivers.—Manchester Watch Committee has appointed a sub-committee to confer with representatives of the Transport Committee and the Transport and General Workers' Union with respect to tests for drivers of public service vehicles.

Sleeper Track Project Abandoned.—Manchester Transport Committee has recommended the City Council to abandon the scheme for the construction of tramways with sleepers on the Kingsway extension, and to use motor omnibuses instead.

Purchase of Cars by Dover.—The five second-hand top-covered tramcars referred to in our last issue as having been purchased by Dover Corporation from Birmingham Corporation were not purchased directly from the City Council, but from a firm of Birmingham dealers.

Rochdale Corporation's Bill seeking powers to substitute omnibuses on abandoned tramway routes and protection from indiscriminate competition is expected to come before the House of Lords' Committee in the last week in June. The monopoly clauses are opposed by Lancashire County Council and Wardle Urban Council.

Manchester Transport Employees' Sports Ground.—A new clubhouse and sports ground of the Manchester Corporation Transport Employees' Social and Athletic Society was opened at Crumpsall on May 28 by Mr. I. Brassington, chairman of the Transport Committee. Some £12,000 was spent on house and grounds.

New Cars and Omnibuses for Leeds.—The authority of the Ministry of Transport is being sought by Leeds Corporation to borrow £24,000 for the provision of twelve double-deck omnibuses. The Tramways Committee also proposes to provide a hundred new tramcars during a period of two years to replace old vehicles.

Omnibus Competition in Havana.—The United Railways of Havana & Regla Warehouses, Ltd., owing to the increasing road competition and other local conditions, have been unable to meet the interest on their debentures during at least the current year, except upon their four per cent. debentures and debenture stock.

Omnibuses for an Aberdeen Route.—By nineteen votes to nine Aberdeen Council on June 3 decided to replace the tramcars on the Torry route with motor omnibuses. There was a loss of £2,900 on this section last year, and housing is developing in a locality remote from the tramways. It is proposed to secure omnibuses on trial.

Five-Night Week in Depots.—The Transport and General Workers' Union has applied to the Bolton Tramways Committee for the establishment of a five-night week for employees engaged permanently on night work in the tramway depots and omnibus garages. The Committee decided that on the submission in writing of a scheme from the union showing how a five-night week could be worked they would give the matter full consideration.

Omnibus Strike in Belfast.—The strike of some of the employees of the Irish Omnibus Company at Belfast continues. On June 3 armed men held up one of the company's omnibuses, while in another case three shots were fired at an omnibus. About the same time six armed and masked men stopped an omnibus about three miles from Granard, Co. Longford, and attacked a driver and conductor. The attackers drove the omnibus into a bog.

Belfast Omnibus Fares.—Belfast Corporation proposes shortly to apply to the Road Transport Fares Tribunal for a revision of the fares on their omnibuses run within the city. Mr. W. Chamberlain, the general manager, recently reported to the Tramways Committee that the results of the present fares, which had been in operation for about twelve months, had not been satisfactory, and that the services could not be continued without further financial loss.

Awards for Careful Driving at Oldham.—Of 102 omnibus and tower wagon drivers of Oldham Corporation who entered the competition for the National Safety First certificates 80 were successful. Of these 39 had an unblemished record for three consecutive years and 21 for two years. Councillor I. Crabtree, chairman of the Tramways Committee, who made the presentations, said that the record of the men was a credit to themselves and the department in view of the extraordinary increase in traffic.

Co-ordination of Glasgow Transport.—A scheme for the co-ordination of tramway, subway and omnibus services in Glasgow is to be formulated by the Transport Committee, and will be submitted to the Corporation. This follows on the recognition by the Select Committee of the House of Commons of the right of Glasgow to control its transport services. It is understood that a survey of the tramway system will be made by the committee, and if it is decided that certain routes are unsuitable for the tramway traffic omnibuses will be substituted.

"Elephant and Castle" Improvement.—The report of the London County Council's Improvements Committee (summarised in THE TRAMWAY AND RAILWAY WORLD of May 17), recommending the adoption of a revision of the scheme for a circular road at the "Elephant and Castle," has been adopted. The revision was suggested by the Minister of Transport, at the instance of the London and Home Counties Traffic Advisory Committee. They advised that traffic from Walworth-road to the adjoining Newington-causeway would suffer an unnecessarily long diversion in having to go round the circle to enter the Causeway.

L.C.C. Safety First Awards.—Mr. F. Bertram Galer, chairman of the London County Council Highways Committee, presented awards on May 23 to 232 L.C.C. tramcar drivers who had been free from accident during 1929. This number is 70 per cent. of those entering the competition, and 24 had no accidents for five years or more. Mr. C. J. C. Grantham, of New Cross depot, has been immune from accident for twelve years, this being the department's record. He has driven over 250,000 miles. Motorman T. W. Manley, of Holloway depot, has a record of ten years.

Glasgow Omnibus Regulations.—With reference to the Glasgow Transport Bill, which seeks monopoly powers for street passenger transport, and passed the Committee stage of the House of Commons on May 16, the Magistrates' Committee have intimated that no changes in stances are to be made meantime. Licensed omnibuses would be allowed to come to the stances as hitherto, the routes being the same as stated in the certificates granted last year. The number of stopping places had been considerably increased. Only one or two omnibus proprietors have taken exception to the decision, and an adjustment with these is expected shortly.

Glasgow-Berlin Report.—We are indebted to the general manager of Glasgow Corporation Transport Department for a copy of the report of the deputation which visited Berlin recently to investigate the transport system there. It covers the subject very comprehensively, describes the working of the tramways, the omnibus section, and the underground and elevated railways, and concludes with general notes and impressions. The report is attractively printed and well illustrated, and forms an interesting and instructive record of an important visit. The members of the deputation were Bailie P. J. Dollan, convenor of the Transport Committee, Mr. L. Mackinnon, general manager of the tramways, and Mr. R. F. Smith, traffic superintendent.

PERSONAL.

Mr. H. B. Sharpe, deputy manager and rolling-stock engineer, Rotherham Corporation Transport, has been appointed general manager of Morecambe and Heysham Corporation Transport Department, at a salary of £500 a year. There were 107 applicants.

Mr. J. Wetherell, borough electrical engineer and manager, Leyton Corporation electricity department, has been granted an increase in salary to the maximum of £1,050 per annum as from July 1 next, instead of on July 1, 1931. In our issue of May 24, Mr. J. W. Speight was incorrectly named as the borough electrical engineer and manager.

Mr. David James, J.P., managing director of Swansea Improvements and Tramways Co., has been presented by the staffs of the company with an electric clock to mark the attainment of his jubilee in the service of the company. Mrs. James was handed a handsome canteen of cutlery. Messrs. Rees Edwards (chief clerk), A. Johnston (electrical engineer, Tramways and Mumbles Railway), and F. L. Lewis (manager, South Wales Transport Co.) made the presentations. In response, Mr. James referred to the loyalty and assistance he had received from the staffs.

"Underground" Delegation to the U.S.A.—Mr. George J. Shave, engineer and operating manager of the London General Omnibus Co., will read a paper on "London Omnibuses and Other Forms of Passenger Transportation," at the annual convention of the American Electric Railway Association, which will be held at San Francisco from June 23 to 26. Mr. Shave will attend the Convention in the dual capacity of a representative of the Underground Group and a vice-chairman of the Commercial Motor Users' Association. Other representatives of the Group will be Mr. A. A. M. Durrant, assistant superintendent of rolling stock, L.G.O. Co.; Mr. J. H. Williams, divisional engineer, L.G.O. Co.; and Mr. L. B. Hewitt, mechanical engineer, Metropolitan Electric, London United, and South Metropolitan Tramways.

FINANCIAL.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended June 4 amounted to £84,110, an increase of £862 compared with the corresponding week of last year. The route length was 165.60 miles, as compared with 166.29 a year ago. From April 1 (the commencement of the financial year) to June 4 (9 2-7 weeks), the total receipts were £772,765, a decrease of £4,298.

Municipal Transport Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended May 17 give total receipts of £410,225, or £5,916 less than in the corresponding week of last year. The aggregate receipts for seven weeks amounted to £2,900,536, an increase of £80,078 over the corresponding period of last year.

CONTRACTS.

Birkenhead Sanitary Committee has accepted the tender of Dennis Brothers, Ltd., for the supply of two six-ton motor vehicles.

Plymouth Corporation has accepted the following tenders: Edgar Allen & Co., Ltd., for tramway points; Titan Trackwork Co., Ltd., crossings.

Salford Tramways Committee has placed contracts as follow: Hadfields, Ltd., points and crossings; Ferguson & Pailin, Ltd., a lathe at £179, plus £57 for extras.

Liverpool Tramways Committee has accepted the tenders of Edgar Allen & Co., Ltd., and the Titan Trackwork Co., Ltd., for the supply of tramway junctions.

Penge Council, subject to the concurrence of the South Metropolitan Tramway Company, has accepted a tender of £1,593 for the re-laying of sections of the tramway track in Penge.

Digitized by Google

Bolton Gas Committee has purchased a Leyland 50-cwt. motor-lorry fitted with hydraulic tipping gear.

Karrier Motors, Ltd., have a contract from Hull Corporation for the supply of two motor-lorries at £500 each. The Works Committee is considering the purchase of a car for the city engineer's department.

Bradford Corporation has accepted the tender of the English Steel Corporation, Ltd., for the supply of 100 tramcar tyres at £328 2s. 6d., and that of John Crook, Ltd., of Bolton, for the erection of a passenger shelter in Great Moor-street.

Dorman, Long & Co., Ltd., of Middlesbrough, are to supply 106 tons of rails to Croydon Corporation at £10 16s. 3d. per ton. Replying to a question, Councillor Keys, chairman of the Tramways Committee, said the rails would be British—not imported rails.

Manchester Transport Committee has placed a contract with Oil Installations, Ltd., for the installation of two petrol fuelling columns and power pump at Queen's Road Garage, and that of Thompson (Bilston), Ltd., for a 250-gallon petrol road tank.

South Shields Tramways Committee has purchased from the Tyneside Tramways Co. two bogie cars at £250 each, six tramway motors at £25 each, and six controllers at £12 10s. The Committee also purchased 50 tons of tramway rails at £9 16s. 9d. per ton, from Dorman, Long & Co., Ltd.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

Name.	Week ended	Latest Return. 1929	1930	+ or −	Aggregate. Wks	1930	+ or −
		£	£	£		£	£
Aberdare U.D.C.	May 27	743	681	− 62	8	4,765	− 152
,, Motor Buses	,, 27	273	266	− 7	8	2,334	+ 184
,, Total ...	,, 27	1,016	947	− 69	8	7,099	+ 32
Aberdeen Corp.	,, 31	6,790	7,519	+ 729	52½	256,604	+ 19,745
Ashton-u-Lyne Corp.	,, 24	1,070	851	− 219	8	6,828	− 538
,, Motor Buses	,, 24	591	482	− 109	8	4,022	− 29
,, Trolley Buses	,, 24	310	263	− 47	8	2,179	− 113
,, Total ...	,, 24	1,971	1,596	− 375	8	13,029	− 680
Ayr Corporation	,, 31	549	590	+ 41	2	1,230	− 173
Barrow Corporation	,, 31	660	579	− 81	9	4,967	− 593
,, Motor Buses	,, 31	334	388	+ 54	9	3,292	+ 608
,, Total ...	,, 31	994	967	− 27	9	8,259	+ 15
Belfast City	,, 30	11,778	12,212	+ 434	8½	99,621	+ 4,384
,, Motor Buses	,, 30	1,187	1,431	+ 244	8½	11,806	+ 2,404
,, Total ...	,, 30	12,965	13,643	+ 678	8½	111,427	+ 6,788
Birkenhead Corp.	June 1	1,717	1,616	− 101	9	14,062	− 1,143
,, Motor Buses	,, 1	3,278	3,432	+ 154	9	30,004	+ 1,153
,, Total ...	,, 1	4,995	5,048	+ 53	9	44,066	+ 10
Birmingham Corp.	May 27	30,357	27,108	− 3,249	8	216,860	− 1,900
,, Motor Buses	,, 27	14,740	15,430	+ 690	8	123,464	+ 23,779
,, Trolley Buses	,, 27	536	563	+ 27	8	4,588	+ 212
,, Total ...	,, 27	45,633	43,101	− 2,530	8	344,912	+ 22,091
Blackburn Corp.	,, 28	1,993	1,896	− 97	8½	15,440	− 1,092
,, Motor Buses	,, 28	Nil	322	+ 322	8½	2,733	+ 2,733
,, Total ...	,, 28	1,993	2,218	+ 225	8½	18,173	+ 1,641
Bradford Corporation	,, 31	14,486	14,163	− 323	9	123,851	− 8,963
Brighton Corporation	June 1	2,360	2,499	+ 139	8½	21,624	+ 656
Burnley Corporation	May 31	2,951	2,704	− 247	...	...	...
,, Motor Buses	,, 31	624	678	+ 54	...	...	...
,, Total ...	,, 31	3,575	3,382	− 193	...	...	...
Burton-on-Trent Corp.	June 1	805	828	+ 23	9	7,579	+ 504
Bury Corporation	,, 1	2,120	1,843	− 277	8½	16,435	− 3,140
,, Motor Buses	,, 1	382	1,064	+ 682	8½	9,540	+ 6,216
,, Total ...	,, 1	2,502	2,907	+ 405	8½	25,975	+ 3,076
Cardiff Corporation	May 31	7,633	7,591	− 42	8½	67,673	+ 1,170
Chatham and District	,, 29	1,159	1,118	− 41	21	22,820	+ 982
Chester Corporation	June 2	444	Nil	− 444	9	Nil	− 4,127
,, Motor Buses	,, 2	Nil	606	+ 606	9	5,772	+ 5,772
,, Total ...	,, 2	444	606	+ 162	9	5,772	+ 1,645
Chesterfield Corp.	,, 2	1,799	1,859	+ 60	9	16,129	+ 278
Colchester Corp.	,, 4	518	594	+ 76	10	5,078	+ 431
Colne Corporation	,, 4	654	698	+ 44	9	6,561	− 85
Coventry Corporation	,, 1	2,016	2,010	− 6	9	18,540	− 1,138
,, Motor Buses	,, 1	1 501	1,784	+ 283	9	16,378	+ 2,161
,, Total ...	,, 1	3,517	3,794	+ 277	9	34,918	+ 1,023
Darlington Corp.	May 31	1,000	1,016	+ 16	8⅝	9,245	+ 790
Derby Corporation	,, 31	2,448	2,517	+ 69	9	21,646	− 467
,, Motor Buses	,, 31	664	965	+ 301	9	7,985	+ 2,268
,, Total ...	,, 31	3,112	3,482	+ 370	9	29,631	+ 1,801
Dover Corporation	,, 31	374	384	+ 10	9	3,309	+ 70
Dundee Corporation	,, 27	3,457	3,415	− 42	18	5,948	− 527
East Ham Corp.	,, 31	2,369	2,319	− 50	8½	20,288	+ 381
Edinburgh Corp.	,, 24	22,909	21,646	− 1,263	1½	2 1,646	− 1,263
,, Motor Buses	,, 24	5,474	5,452	− 22	1½	5,452	− 22
,, Total ...	,, 24	28,383	27,098	− 1,285	1½	27,098	− 1,285
Exeter Corporation	June 4	860	848	− 12	10	7,652	− 525
Glasgow Corporation	May 31	47,211	45,800	− 1,411	52	2,312,741	+ 32,804
,, Motor Buses	,, 31	5,368	2,943	− 2,425	52	349,232	+ 164,972
,, Total ...	,, 31	52,579	48,743	− 3,836	52	2,661,973	+ 197,776
Gloucester Corp.	,, 28	560	676	+ 116	8½	5,704	+ 1,249
Grimsby Corporation	,, 31	1,325	1,449	+ 124	9	13,130	+ 1,461
Halifax Corporation	,, 27	4,519	5,060	+ 541	8½	41,624	+ 3,450
Huddersfield Corp.	,, 31	6,300	6,190	− 110	9	56,413	− 2,545
Hull Corporation	,, 31	5,825	5,737	− 88	9	51,539	− 455
,, Motor Buses	,, 31	1,319	1,405	+ 86	9	12,465	+ 957
,, Total ...	,, 31	7,144	7,142	− 2	9	64,004	+ 502
Ilford Corporation	,, 31	1,485	1,532	+ 47	8⅝	13,295	+ 369
Ipswich Corp. Trol.Bus	,, 31	1,248	1,282	+ 34	8⅞	11,338	+ 516
Isle of Thanet	,, 28	719	556	− 163	21	8,991	− 676
Kilmarnock Corp.	,, 31	475	476	+ 1	2⅛	1,147	− 24
Lancashire Un.	,, 25	2,335	2,170	− 165	20⅝	45,163	− 2,058
,, Motor Buses	,, 25	5,032	4,715	− 317	20⅝	97,248	+ 14,110
Leeds Corporation	,, 31	19,755	20,634	+ 879	8⅝	174,299	+ 3,785
Leicester Corp.	,, 31	8,431	8,673	+ 242	9	73,854	+ 1,548
Lincoln Corp.	June 1	910	912	+ 2	9	8,146	− 75
Liverpool Corp.	May 31	30,628	30,315	− 313	8⅝	262,792	+ 1,835
London County Coun.	June 4	83,248	84,110	+ 862	9⅛	772,765	− 4,298
Luton Corporation	May 28	430	413	− 17	8⅛	3,601	+ 233
Maidstone Corp.	,, 29	221	Nil	− 221	8⅛	Nil	− 2,225
,, Motor Buses	,, 29	267	265	− 2	8⅛	2,340	− 42
,, Trolley Buses	,, 29	293	556	+ 263	8⅛	5,431	+ 2,774
,, Total ...	,, 29	781	821	+ 40	8⅛	7,771	+ 507
Manchester Corp.	,, 31	35,386	33,208	− 2,179	9	284,163	− 23,737
,, Motor Buses	,, 31	5,115	8,826	+ 3,711	9	73,621	+ 30,198
,, Total ...	,, 31	40,501	42,034	+ 1,533	9	357,784	+ 6,461
Middlesbrough Corp.	,, 27	1,128	1,003	− 125	8½	8,726	− 621
,, Motor Buses	,, 27	510	518	+ 8	8½	4,508	+ 394
,, Total ...	,, 27	1,638	1,521	− 117	8½	13,234	− 227

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS—*Continued.*

Name.	Week ended	Latest Return. 1929	1930	+ or −	Aggregate. Wks.	1930	+ or −
		£	£	£		£	£
Newcastle-on-Ty.Corp.	May 31	9,945	8,411	− 1,534	8⅝	76,213	− 7,290
,, Motor Buses	,, 31	2,231	2,822	+ 581	8⅝	22,441	+ 4,603
,, Total ...	,, 31	12,176	11,233	− 943	8⅝	98,654	− 2,687
Newport Corporation	,, 24	1,032	816	− 214	8	6,425	+ 418
,, Motor Buses	,, 24	1,808	1,545	− 263	8	12,749	− 161
,, Total ...	,, 24	2,840	2,363	− 477	8	19,174	+ 257
Northampton Corp.	,, 30	1,104	1,125	+ 21	8⅝	9,591	− 485
,, Motor Buses	,, 30	716	944	+ 228	8⅝	6,212	+ 988
,, Total ...	,, 30	1,820	2,069	+ 249	8⅝	15,803	+ 503
Nottingham Corp.	,, 29	6,484	5,807	− 677	8⅝	48,587	− 7,391
,, Motor Buses	,, 29	2,194	3,283	+ 1,089	8⅝	27,247	+ 8,169
,, Trolley Buses	,, 29	575	1,222	+ 647	8⅝	10,102	+ 5,039
,, Total ...	,, 29	9,253	10,312	+ 1,059	8⅝	85,936	+ 5,817
Oldham Corporation	,, 31	3,373	3,365	− 8	10	33,714	− 2,310
,, Motor Buses	,, 31	2,002	1,963	− 39	10	19,879	− 516
,, Total ...	,, 31	5,375	5,328	− 47	10	53,593	− 2,826
Plymouth Corp.	,, 31	3,755	3,406	− 349	8⅝	31,500	− 812
,, Motor Buses	,, 31	1,926	2,304	+ 378	8⅝	20,489	+ 4,143
,, Total ...	,, 31	5,681	5,710	+ 29	8⅝	51,989	+ 3,331
Portsmouth Corp.	,, 31	6,033	6,872	+ 839	9	58,950	+ 6,499
Preston Corporation	,, 28	1,715	1,651	− 64	8⅜	13,770	− 863
,, Motor Buses	,, 28	459	507	+ 48	8⅜	4,219	+ 186
,, Total ...	,, 28	2,174	2,158	− 16	8⅜	17,989	− 677
Rawtenstall Corp.	June 1	882	626	− 256	8⅜	6,281	− 1,495
,, Motor Buses	,, 1	517	740	+ 223	8⅜	6,156	+ 1,467
,, Total ...	,, 1	1,399	1,366	− 33	8⅜	12,439	− 28
Reading Corporation	May 29	1,561	1,383	− 178	8	11,904	− 721
,, Motor Buses	,, 29	970	987	+ 17	8	8,153	+ 612
,, Total ...	,, 29	2,531	2,370	− 161	8	20,057	− 109
Rochdale Corp.	,, 31	3,032	2,712	− 320	...	24,050	− 2,968
,, Motor Buses	,, 31	1,618	1,525	− 93	...	13,951	+ 453
,, Total ...	,, 31	4,650	4,237	− 413	...	38,001	− 2,515
Rotherham Corp.	June 2	2,610	2,763	+ 153	9	25,171	+ 1,108
Salford Corporation	,, 1	10,871	11,311	+ 440	8⅜	100,422	+ 1,115
Sheffield Corp.	May 31	20,599	20,887	+ 288	8⅝	187,484	+ 241
Southampton Corp.	,, 28	3,485	3,387	− 97	9	27,816	+ 374
,, Motor Buses	,, 28	768	874	+ 105	9	7,253	+ 1,552
,, Total ...	,, 28	4,253	4,261	+ 8	9	35,069	+ 1,926
Southend-on-Sea Corp.	June 4	2,054	1,957	− 97	9⅜	17,744	− 1,405
,, Motor Buses	,, 4	144	263	+ 119	9⅜	2,364	+ 1,039
,, Total ...	,, 4	2,198	2,220	+ 22	9⅜	20,108	− 366
Southport Corp.	May 31	1,421	1,219	− 202	8⅜	10,991	− 487
,, Motor Buses	,, 31	404	376	− 28	8⅜	3,419	+ 214
,, Total ...	,, 31	1,825	1,595	− 230	8⅜	14,410	− 273
St. Helens Corp.	,, 27	1,930	1,970	+ 40	8½	16,480	+ 1,108
Sunderland Corp.	June 3	2,333	2,453	+ 120	9	21,790	+ 332
,, Motor Buses	,, 3	139	514	+ 375	9	4,159	+ 3,547
,, Total ...	,, 3	2,472	2,967	+ 496	9	25,949	+ 3,879
Swindon Corp.	May 28	1,081	978	− 103	8⅜	8,029	+ 1,915
Wallasey Corp.	,, 31	1,414	1,212	− 202	8⅝	10,488	− 1,122
,, Motor Buses	,, 31	2,273	2,284	+ 11	8⅜	18,833	+ 1,576
,, Total ...	,, 31	3,687	3,496	− 191	8⅜	29,321	+ 454
Walsall Corporation	,, 25	4,257	3,395	− 862	8	28,143	+ 178
Walthamstow Corp.	,, 31	2,540	2,476	− 64	8⅜	21,451	− 342
Warrington Corp.	,, 29	874	875	+ 1	9	7,996	+ 26
,, Motor Buses	,, 29	431	485	+ 54	9	4,438	+ 495
,, Total ...	,, 29	1,305	1,360	+ 55	9	12,434	+ 521
West Ham Corp.	,, 29	5,901	6,163	+ 262	8⅜	52,246	+ 925
Wolverhampton Corp							
,, Motor Buses	,, 25	3,783	2,328	− 1 455	8	19,221	− 4.150
,, Trolley Buses	,, 25	4,198	3,498	− 700	8	28,130	+ 1,626
,, Total ...	,, 25	7,981	5,826	− 2,155	8	47,351	− 2,524
York Corporation	,, 28	1,180	1,188	+ 8	9	8,494	+ 245
,, Motor Buses	,, 28	398	536	+ 138	9	4.181	+ 1,097
,, Trolley Buses	,, 28	67	Nil	− 67	9	Nil	− 378
,, Total ...	,, 28	1,645	1,724	+ 79	9	12,675	+ 964

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

Name.	Week or M'th.	Latest Return. 1929	1930	Aggregate. Wks. or *M*	1930	In. or Dec.
Anglo-Argentine	June 3	£84,309	£81,705	22 w	£1,853,978	− £83,081
Brazilian Traction $	Apr.	4,042,145	4,127,492	4 m	15,835,315	+ 216,078
British Columbia $.	Mar.	1,243,592	1,258,375	9 m	11,110,713	+ 567,360
Buenos Aires Lacroze	June 1	10,987	11,087	48 w	563,596	− 42,523
Burma E. Sup. Co. Rs.	Apr.	64,744	65,482	9 m	577,208	− 22,269
Calcutta ... Rs.	May 31	119,236	100,668	21½ w	2,514,893	− 275,357
Cape Town ...	Apr.	29,244	27,500	...	...	...
Carthagena & Herrerias	May	725	552	5 m	5,097	+ 752
Durban	Mar.	24,442	23,662	8 m	190,536	+ 1,460
East India	May	3,862	3,698	10 m	37,824	+ 407
Kalgoorlie	Feb.	1,433	1,437	2 m	2,981	− 73
Madras (2 weeks) Rs.	May 31	42,674	42,494	20 w	460,239	+ 27,958
Para	Apr.	15,060	15,564	5 m	73,211	+ 785
Port Elizabeth ...	Apr.	7,877	7,521	...	...	...
Rangoon ... Rs.	May	121,040	149,440	5 m	757,465	+ 163,189
Shanghai ... $	Apr.	336,624	308,840	4 m	1,372,562	+ 82,225
Singapore ... ...$	Apr.	131,000	137,000	7 m	935,000	+ 108,000
Winnipeg ... ...$	Mar.	572,492	571,157	3 m	1,767,705	+ 16,352

RAILWAY RECEIPTS.

22nd Week ended June 1st	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week.	Inc. or Dec. to Date.
G.W.R.	214,000	− 12,000	341,000	− 16,000	555,000	− 28,000	− 353,000
L.M.S.R.	496,000	− 22,000	759,000	− 47,000	1,255,000	− 69,000	−1,180,000
L.N.E.R.	337,000	− 13,000	649,000	− 20,000	986,000	− 33,000	− 500,000
S.R.	303,000	− 5,000	122,000	+ 6,000	425,000	+ 1,000	− 151,000
Totals	1,350,000	− 52,000	1,871,000	− 77,000	3,221,000	− 129,000	−2,184,000

ELECTRIC RAILWAYS.

Name.	Week Ended.	Latest Return. 1929.	1930.	+ or −	Aggregate. 1930.	+ or −
London Underground Common Fund Cos.	May 31	304,900	310,700	+ 5,800	6,497,600	+ 428,200
Lond. & Sub. Group	,, 31	45,100	45,700	+ 600	943,400	+ 75,000
Metropolitan Railway	,, 31	36,100	36,600	+ 500	805,200	+ 19,700
Liverpool Overhead	June 1	1,653	1,550	− 103	32,952	− 2,004
Mersey Railway ...	May 31	4,156	4,374	+ 218	102,794	+ 3,009

Digitized by Google

THE
Tramway AND Railway World

FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.

Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates:

FOR THE UNITED KINGDOM—Twenty-five shillings per annum.

FOR ALL PLACES ABROAD—Twenty-five shillings per annum. Postage to Canada, 6s.: to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS

LONDON, JUNE 14, 1930.

COMPETITION WITH OVERSEAS TRAMWAYS.

Tramways undertakings which have been set up by British capital in other countries still have a more difficult task to preserve financial equilibrium than is the case here. The reason is that the authorities have not yet arrived at the stage when it is seen that unrestricted competition is wasteful and must become burdensome to the public. This slowness of comprehension is not surprising when one remembers that it took the U.S.A. and Canada a decade to bring jitney traffic under control, and that in this country there has been an even longer delay. It is only in 1930 that legislation in the form of the Road Traffic Bill is being enacted to eliminate waste in facilities, to bar the use of dangerous vehicles, and to bring about co-ordination. Apparently no part of India has arrived at that happy position, Calcutta being especially backward. According to the Chairman of the Tramways Company, the authorities there appear determined not to restrict wasteful rivalry, thereby increasing congestion in the principal thoroughfares, with the result that the company is not encouraged to extend the tramways into outlying areas. Calcutta Corporation, too, has ignored proposals that would have meant a move in the direction of co-ordination. Such apathy is opposed to the public interest and safety, and is the reverse of courteous to a company that has served the city for fifty years. Cheap travel is especially needed in Calcutta, where only a small proportion of the population can afford to ride. In view of the presence of 450 omnibuses owned by 350 owners, it is surprising that the company has not only preserved for the city the cheapest means of travel, but has met its debenture interest and paid an ordinary dividend of 1s. 2½d. per cent. for the year, besides causing rivals to complain of the competition of the tramcars. In addition, the company is running a large number of omnibuses to provide feeder and complementary services. The capital of Mexico is another place where the rulers show little regard for the public welfare or for the Tramways Company that contributes largely to the revenue from taxation. Otherwise there would not be 1,523 omnibuses operating in the city, 1,190 being in direct competition with the tramways. By its use of omnibuses as well as tramways, the Brazilian Traction Company is gradually driving out competitors, but the company complains that local restrictions are an obstacle to efficient service on an economical basis. It is hoped that this year concessions in franchises will enable the directors to meet the expenditure necessary to provide up-to-date facilities at Rio de Janeiro and Sao Paulo.

CONGRESS AT HASTINGS.

THE TRAMWAYS, LIGHT RAILWAYS AND TRANSPORT ASSOCIATION.

The twentieth annual Congress of the Tramways, Light Railways and Transport Association was held on Wednesday, Thursday and yesterday (Friday) at Hastings, and proved in every way a great success. Nearly two hundred representatives attended. On Wednesday evening there was an informal reception by Mr. E. H. Edwardes (chairman of the Council of the Association) at the Queen's Hotel, the headquarters. On Thursday the Mayor of Hastings (Coun. F. M. Russell Davies, K.C.) welcomed the Congress at the Queen's Hotel. His Worship was received by Colonel Sir Joseph Nall, a member of the Council, who thanked the Mayor for the honour he had extended to them.

THE ANNUAL MEETING.

Then followed the annual general meeting, presided over by Mr. E. H. Edwardes, who, in the course of his review of the year, said that one of the reasons which had prompted the holding of the Conference in Hastings was that it would give an opportunity of examining a complete and up-to-date system of trolleybuses, which was under the very able management of Mr. W. Vincent Edwards. There were, he added, some 14 Bills now before Parliament seeking trolleybus powers, and it was appropriate that they should have an opportunity of inspecting a modern installation. Referring to the accounts, the Chairman said that there was a small balance on the right side. There was a total net surplus over previous years of £694, which was invested, and the total investments were £749.

After a reference to the change in the name of the Association, the Chairman spoke of the period of transition through which we are passing in transport matters, and of the fact that some of the old tramway companies had been forced, owing to the onerous and unfair burdens placed upon them by way of road maintenance, to pull up their tramway tracks and adopt motor omnibuses. Others, like the Hastings Company, had adopted trolleybuses, and others had a combination of both. Nearly all tramways undertakings now had some motor omnibuses, and tramways were being more and more linked up with omnibuses. Matters affecting the position of these various undertakings were now occupying the attention of Parliament in regard to the Road Traffic Bill, and the Council was watching the interests of the members very carefully. Several amendments suggested by the Association had been adopted, but unfortunately the Minister of Transport had added a new clause at the last moment—Clause 90—which rather cut the ground from under their feet in the way of protection. That clause was, however, to have consideration in the House of Lords. The Chairman added that the Council had Joint Sub-committees with the Municipal Tramways and Transport Association on the questions of electrolysis, the new Ministry of Transport Regulations as to earthing guard wires, and the interruption caused to broadcasting in tramway areas.

The Council's report was then adopted.

ELECTIONS TO THE COUNCIL.

The following nominated by the Council to fill vacancies in the Council, were unanimously elected: Mr. R. S. Asher (general manager, York Corporation Tramways and Motors), Mr. W. McGibbon (general manager, Mexborough and Swinton Tramways Co.), Mr. C. R. Tattam (Messrs. Balfour, Beattie & Co., Ltd.), Mr. J. A. Forde (general manager, Isle of Thanet Electric Supply Co.), Mr. W. E. Ireland, O.B.E. (London County Council Tramways).

This leaves one vacancy to be filled, as usual, at the option of the Council.

The thanks of the Association were accorded to the retiring members of the Council for their work during the past three years: viz., Sir Joseph Nall, and Messrs. Chivers, Harvey, Richardson, Soames, and T. E. Thomas. At the same time, Mr. Thomas was congratulated on his appointment as general manager of the London County Council Tramways.

REPLACING TRAMWAYS WITH TROLLEYBUSES.

MR. W. VINCENT EDWARDS, engineer and general manager, Hastings Tramways Co., submitted "Notes on Substituting a Trolleybus System for a Tramway." It would save time and expense, he said, to call in outside assistance to supervise the conversion of the first route and to instruct the local staff. There was a great tendency to put up negative wires alongside existing tramway ones, and only to move the latter a couple of feet, whereas five to eight feet was required. Switches, crossings and line work in general, which might be suitable for tramway speeds, were not sufficient for a trolleybus. The scrapping of rails raised the question of providing adequate copper for the return circuit. He proceeded on the lines that by using cadmium copper wire of 6/0 S.W.G. he would have an alloy which would be nearly equal in conductivity to pure copper, but of longer lasting qualities, and would also give

Digitized by Google

a higher contact for the trolley wheels. In almost every instance he retained the tramway wires as positive, and erected new negatives, one on either side. This was necessary to obtain the benefit of the new 6/0 wires on the negative side of the circuit. Poles for the overhead equipment were made of tramway rails encased in concrete, kept as far as possible on the compression side of the pole. Existing poles at curves and junctions were reinforced. At junctions, where guard wires were required, tramway poles could be increased in height while being reinforced. Guard wires could then be erected at such a height that they would not be touched by a de-wired trolley. To assist the negative return from Bexhill an overhead feeder had been erected close to the poles. It was of 7/0 bare solid hard-drawn copper, and the cost was only at the rate of £208 per mile. The use of 6/0 trolley wire entailed fittings of his own design for line work. For the trolley heads a wheel running on ball bearings had been introduced. It had a high conductivity carbon brush bearing on the side of the wheel as collector.

In presenting the paper, Mr. Edwards added that two operating points of outstanding interest were the enormous reduction of congestion in the narrow streets of Hastings, and the considerable increase in the average speed in the more open parts by nearly 100 per cent., as compared with the old tramways.

A long and interesting discussion was taken part in by Messrs. A. R. Hoare (London), W. V. Morland (Walsall), N. Clough (London), D. E. Bell (Dewsbury), H. Beasant (Bristol), Warrilow (London), C. R. Tattam (London), R. H. Campion (Torquay), B. England (St. Helens), F. A. Garrett (Ipswich), W. A. Stevens (Maidstone), W. Tuke Robson (London), L. E. Harvey (Ilford), and H. England (Wakefield).

By invitation of the Mayor and Corporation, the members partook of luncheon.

The afternoon programme comprised a demonstration of motor and trolley omnibuses at Falaise-road, at the rear of the White Rock pavilion, an excursion by road to Winchelsea and Rye, and an inspection of the Hastings trolleybus system under the guidance of Mr. Vincent Edwards. The car depot was also visited, where fittings for overhead work were inspected.

An hour was devoted to the scrutiny of the 25 motor vehicles of various makers who are members of the Association. To the list given in the June 7 issue of THE TRAMWAY AND RAILWAY WORLD should be added a single-deck saloon shown by Short Bros. on a Tilling-Stevens chassis; a 32-seat omnibus by Messrs. Eastwood and Kenning (successors to Davidson); and a 32-seat saloon omnibus by the Park Royal Coach Works.

The evening was passed at a musical entertainment at the Queen's Hotel.

THE TRAMCAR: PRESENT AND FUTURE.

Yesterday (Friday) a paper bearing the above title was read by MR. J. L. BURTON, manager, Road Transport Department, English Electric Co., and MR. H. H. ANDREWS, sales manager of the Traction Department. As the latest examples of improved cars, two new types of London County Council cars were instanced, one with 2-motor equipment on maximum traction trucks, and the other 4-motor equipment on equal-wheel bogies. Development upon those types was being made on three distinct lines. First, a low-loading vehicle; secondly, a totally enclosed car; thirdly, quicker loading and unloading. Descriptions were given of the enclosed double-deck car of the London United Tramways, the American car for Milan, and the Liverpool Corporation single-deck car, which had a novel form of truck and drive. The L.U.T. car had two equal-wheel bogies, with 24-in. diameter wheels. This wheel diameter, in conjunction with the general design, had reduced the floor level to 2 ft. 3½ in. The authors believed that in additional cars now under construction the whole would be increased to 28 ins. and maximum traction trucks used. Lightweight metal construction had reduced the body weight from 10 tons 11 cwts. to 8 tons 15 cwts. Large enclosed platforms provided standing accommodation for rush hour traffic. Every window except the end and corner windows could be opened 12 ins. The necessity for higher speeds to meet competition laid mainly in the need for greater acceleration. The cardan shaft and worm-drive or double reduction gearing rendered this possible by allowing for a higher gear ratio, but still permitting a small road wheel. The fact that only a portion of the gearing was carried on the axles, leaving the traction motor and the remainder of the drive spring-borne, immediately made for reduced maintenance of equipments and track. In this country typical departures were the worm drive and cardan shaft as fitted at Portsmouth, worm-drive at Sheffield, and bevel-drive of the Liverpool car. The Portsmouth car followed automobile practice and was representative of further experimental drives at Hull, Halifax and Manchester. The Sheffield type of worm-drive was of particular interest as an endeavour to dispense with the cardan shaft. The bevel-drive at Liverpool was an attempt to utilise the motor frame as a portion of the bogie truck, and the only unsprung weight was the wheels, axles and axle bearings. The authors described experiments with a remote operated controller, which enabled the equipment to be removed from the platforms and automatic acceleration obtained. The car of the future, they suggested, would be on two equal wheel bogies having a small wheel diameter, and totally enclosed. There would be entrances at each end and in the centre. There would be air brakes, and the driver would be seated. Control would be automatic and provided with two or more settings, to allow for variable acceleration. The type of drive was still an open question, but the tendency would be towards a lightweight, high-speed motor with the maximum gear reduction possible.

Mr. Burton added his opinion that tramcars would continue in use for heavy traffic, but single line systems with passing places must be scrapped. He urged greater use of light alloys for tramcar construction in order to reduce weight and running costs.

Mr. F. A. Fitzpayne (Edinburgh) thought that tramways were impoverished through too low fares.

Other speakers emphasised that too little consideration was given to the comfort of passengers in the cars, and that cars twenty years old in design were still being built.

Following the discussion the Chairman and directors of the Hastings Tramways Co. entertained the members at luncheon at the White Rock Pavilion. In the afternoon a visit was paid to Bexhill, Pevensey Castle, Hurstmonceaux Castle and Hellingly. The annual dinner was arranged for last night, under the presidency of the Hon. Sir Arthur Stanley.

TROLLEYBUS PROPOSALS.

Mr. J. A. Bromley, general manager and engineer of the Durban Corporation Tramways Department, has recommended to the Town Council the substitution of trolleybuses for tramcars on certain routes. So far Bloemfontein is the only town in South Africa to use trolleybuses, but Mr. Bromley had considerable experience of them in England. He was formerly general manager of York Corporation Tramways.

The Select Committee of the House of Commons appointed to consider the Southend Corporation Bill seeking powers to extend the trolleybus and omnibus services gave its decision on June 4. The proposed trolleybus services in the borough were approved, but the Committee refused to authorise the running of omnibuses on routes outside the boundaries. Protection from excessive competition was granted only in regard to three routes, and similar protection was allowed for the existing tramway and trolleybus routes. A cesser of powers clause was inserted, providing that the Corporation must begin running the services within four years. The Bill was opposed by local omnibus companies and by the L.M.S. Railway and Carter Paterson & Co., Ltd. In evidence Councillor W. J. Perrett, chairman of the Corporation Transport Committee, said they desired to have trolleybuses as feeders of the tramways, which had suffered from the competition of omnibus services.

BELFAST TRANSPORT DEPARTMENT.

CONGRATULATIONS TO THE GENERAL MANAGER.

The preliminary report of the Belfast Tramways Department has been submitted to the Tramways Committee by the general manager, Mr. W. Chamberlain. The total revenue from tramcars was £587,677 and the working expenses £374,892. Although there was a reduction in working expenses of £54,164, there was no diminution either in staff or wages. The wages bill, as compared with the last normal year (1928) shows an increase of £51,019. The gross profit was £207,743, and after deducting interest, sinking-fund charges and other appropriation charges, there was a net surplus on the tramways of £92,880. The average working expenses per car mile were 10.46d., a reduction of 1.53d. on the last normal year. The number of passengers was 112,558,349, an increase of 17,759,838. The miles run without any addition to the rolling stock were 8,496,361, as compared with 7,419,788 in 1928.

In connection with the omnibus services, the total revenue for the year was £59,860, an increase over 1929 of £37,399. Working expenses were £65,197, an increase of £38,240. The net deficit, including depreciation, interest on loans, and other overhead charges, was £20,713, this being attributed to the low income per mile as a consequence of low fares. Allowing for the subsidy on the omnibuses the net profits on the department as a whole were £72,167.

Mr. Chamberlain was heartily congratulated on the statement, which the Committee regarded as eminently satisfactory.

The "Belfast Telegraph" and the "Northern Whig" have also cordially congratulated the general manager upon the transformation effected in the passenger transport position in the city.

BUSINESS NOTE.

The English Electric Co., Ltd., has entered into a comprehensive arrangement with the Westinghouse Electric International Company (New York) and the Westinghouse Electric and Manufacturing Company, of East Pittsburg, U.S.A., whereby there will be an exchange of technical information on steam turbines and electrical apparatus. The arrangement includes the granting of licences for the use of patents and for the manufacture and sale of various products. Under this arrangement the English Electric Co. will have the benefit of the results of the extensive research carried on by the Westinghouse Electric and Manufacturing Co., but the technical and manufacturing link thus established does not carry with it any control from America. Believing that a moderate financial interest on the part of the American Westinghouse Companies would be highly desirable, the English Electric Co. has offered a participation in the ordinary shares at par, but this participation will be under 10 per cent. of the total.

Motor Van Wanted.—Great Yarmouth Town Council has directed the general manager of the tramways to invite tenders for a 30-cwt. motor van equipped to deal with any omnibus breakdown.

Digitized by Google

MISCELLANEOUS NEWS AND NOTES.

Passes for the Blind.—On Croydon Corporation Tramways 117 blind persons have free travelling passes.

Wigan Tramways Sub-Committee recommends the purchase of 200 tramway standards from Manchester Corporation at £2 10s. each.

Electricity Charge Reduced.—Bolton Electricity Committee has reduced the price charged for current for tramcars from 1.15d. per unit to 1.05d. per unit.

Purchasing an Omnibus Service.—Blackburn Tramways Committee has decided to exercise the Corporation's option of taking over the local omnibus service of the Ribble Motor Services, Ltd., from January 1, 1931.

The Metropolitan Electric Tramways, Ltd., is to construct an interchange station to relieve the confusion which occurs at Golders Green during the rush hours, caused by passengers changing from tramcar to tube, at a cost of approximately £2,000.

Brighton Illuminations.—After switching on the lavish illuminations on June 7, which are to be a feature of the Brighton summer season, the Mayor (Councillor H. W. Aldrich) drove a specially illuminated car through the Central Valley, followed by twelve others.

A Birmingham Improvement.—Birmingham City Council has approved a proposal to expend £5,000 for the adjustment of the tramway curve in connection with the improvement of traffic conditions at the junction of several streets with the Horse Fair, Birmingham.

Putney Bridge Tramways.—The London County Council is to reconstruct the tramways on the overhead system of electrical traction in connection with the widening of Putney Bridge and its approaches. The lines are also to be removed from the sides of the bridge to the centre.

Omnibuses for Chatham.—Chatham and District Light Railway Co. propose to inaugurate the omnibus service in replacement of tramcars in the autumn. Mr. A. J. Bousfield, engineer and general manager, states that the omnibuses will be of the closed-in double-deck type, of 100 h.p., and seating 50 passengers. Forty or fifty are contemplated as a first delivery.

Question of Unfit Drivers.—A sub-committee of the Transport Committee of Dundee Council discussed what is to happen to employees who fail to pass the medical examination recently decided upon by the Council. Mr. D. P. Morrison, transport manager, advised that there should be a periodical re-examination. It was decided to remit the question to the parent committee.

The Industrial Court has given its decision regarding the application of various classes of Liverpool tramway workers for wage increases. The engineers, who asked for an advance of 10s. weekly, are awarded 1s. 6d., and advances are given to inspectors, pitmen, and handymen. The Court decided that the restoration of 4s. deducted in 1922 from drivers, conductors, and cleaners is not warranted.

Railway Material for U.S.A.—His Majesty's Consul-General at New York has been approached by a local firm who wish to obtain quotations from British manufacturers for 500 tons (seven miles) of steel rails (weight 25 pounds, 24-inch gauge) ; also 19,000 cross ties with necessary bolts and splice bars for fitting the rails. The name of the enquirers can be obtained from the Department of Overseas Trade, 35, Old Queen-street, S.W.1. Reference number AX. 9696 should be quoted.

Ayr Tramway Reconstruction.—Ayr Council has agreed to the recommendation of the Tramways Committee that the track from the Town Hall to the Grammar School be relaid at the cost of £11,600, and that six cars be reconditioned at a cost of £6,396. The Chamberlain stated that after the recommendation of the Committee was adopted, the annual loss would be £3,200, or 2½d. on the rates, whereas if the tramways were scrapped there would be an annual loss of £5,321 for 12 years, or 4d. on the rates.

L.C.C. Holiday Traffic Record.—During the Whitsun holidays the London County Council Tramways carried over six million passengers, establishing a new record. It is believed that a record was also made for the sale of ride-at-will tickets. The tramway companies associated with the Underground ran services to numerous resorts and to greyhound race centres. The Underground Group ran express motor coaches to Windsor from Charing Cross, to Watford from Charing Cross and Golders Green, and half-day tours from suburban centres.

Success of Glasgow's Pullman Cars.—Mr. Dollan, convenor of the Glasgow Corporation Transport Committee, in explaining the remarkable increase in omnibus traffic during the past year, said the Committee had placed on the roads many up-to-date omnibuses and had tapped districts hitherto unprovided for. The increase in tramway takings, he said, was remarkable in view of the competition, not only from outside, but from the department's own omnibuses. He claimed that the increase was almost entirely due to the reconditioned cars introduced during the past three years.

Braking the Trolleybus.—As a souvenir of the twentieth annual Congress of the Tramways, Light Railways and Transport Association at Hastings this week, the Westinghouse Brake and Saxby Signal Co., Ltd., issued an attractive pamphlet containing the programme of the Congress, a number of illustrations, a map of the trolley omnibus routes, and a description of the services, together with a description of the Westinghouse brake as applied to the Hastings trolleybuses and similar vehicles in other towns, including Bradford, Chesterfield, Maidstone, Southend, Doncaster and Nottingham.

Taxation of Petrol-Electric Goods Vehicles.—The House of Commons on June 3 rejected an amendment moved by Sir Lambert Ward to the Finance Bill to place petrol-electric goods vehicles in the same category as battery-driven vehicles. The latter enjoy a reduction of 50 per cent. in licence duty. Mr. Pybus, supporting the amendment, said that the restriction would retard a very fine development in electric traction. In London the noisy vehicle was the goods lorry with a gearbox inefficiently handled. The Minister of Transport contended that it would not be fair to tax the petrol vehicle 100 per cent. higher than the petrol-electric.

PERSONAL.

Mr. Thos. Rolls, city engineer of Bradford, has been authorised by his committee to attend the meeting of the International Electrotechnical Commission to be held in Sweden in July.

Mr. T. H. U. Aldridge, late vice-president and general manager, Shanghai Municipal Electricity Undertaking and the Shanghai Power Company, has arrived in this country. He expects to reside here permanently, his headquarters being in London.

Mr. J. R. Walker, senior technical assistant in the electrical branch of the London County Council Tramways, has been promoted to the position of an assistant engineer on the staff of the chief engineer's department of the Council. The appointment is in connection with the increase of staff necessitated by the new public institutions division of the department. The salary is £750 per annum, rising by annual increments of £50 to £900 a year.

English Electric Company Directors.—The following gentlemen have joined the board of the English Electric Company, viz. : Mr. F. Massingberd Rogers (Greater London and Counties Trust), Sir Edward Hilton Young, P.C., M.P., Mr. Percy Horsfall (Messrs. Lazard Brothers & Co.), and Colonel Wade Hampton Hayes (Chase Securities Corporation). In accordance with the scheme for reorganisation of the capital of the company which was recently adopted by the shareholders, the following directors have resigned, viz. : Sir Charles E. Ellis, Sir John A. F. Aspinall and Colonel Sir John H. Mansell.

CONTRACTS.

Richard Garrett & Sons, Ltd., Leiston, are the successful tenderers for the supply of four electric vehicles at £1,125 each for Glasgow Cleansing Committee.

Crossley Motors, Ltd., have received a repeat order for thirty 70 h.p. Crossley "Eagle" omnibuses from York Corporation Transport Department.

The Dunlop Rubber Co.'s offer to Leeds Tramways Committee for the supply of tyres for omnibuses on a mileage rate has been accepted for an experimental period.

Glasgow Tramways Committee has accepted the following tenders : Larch, Watt Torrance & Co., A. & T. Begg, and Mowat & Miller ; beech, J. Stewart ; yellow cypress, J. S. Dunn & Co. ; calculating machines, Merkham Trading Co., Ltd. ; subway rope, Wrights' Ropes, Ltd.

Halifax Tramways Committee has accepted the following tenders : Richard Johnson & Nephew, five miles copper trolley wire ; J. Steel and Sons, tramcar springs ; Record Oil and Grease Co., 6,000 gallons lubricating and 11,000 gallons motor oil ; Spermolin, Ltd., 10,000 gallons motor oil.

Rotherham Tramways Committee has approved the arrangements made by the general manager, Mr. T. P. Sykes, with regard to the annual replacement of petrol omnibuses. Chas. H. Roe, Ltd., are to supply bodies with several extras for the price of £440 per body, and the Bristol Tramways and Carriage Co., Ltd., are increasing their discount from 17½ per cent. to 20 per cent.

FINANCIAL.

Warrington Corporation Tramways for the year ended March 31 made a profit of £4,357 on the tramways and £6,895 on omnibuses.

Barrow Corporation Tramways.—For the year 1929-30 the tramways and omnibus undertaking shows a loss of £13,539. On the tramways the deficit was £10,735, and on the omnibuses £2,804.

Dundee, Broughty Ferry and District Tramways Co. announces a profit for 1929, after payment of all charges, of £2,504, against £2,780 in 17 months. The debenture stock interest absorbs £1,116, and the sum of £1,388 is carried forward.

Wigan Transport Finances.—Wigan Tramways show a loss of £11,190 during the past year, against £12,926 the previous year. The net profit on trolleybuses was £2,301, and on motor omnibuses £2,862, making the net loss on the combined transport undertakings £6,027.

General Electric Co.—The accounts show profits of £1,179,007 for the year to March 31 last, an increase of £94,930 over the previous year's figures, which were a record. A dividend of 10 per cent., less tax, is recommended on the ordinary shares, or the same as last year, but in addition a bonus of 4 per cent., less tax, is to be paid.

Blackburn Corporation Transport.—Total tramway receipts for year ended March 31 are £99,506, compared with £106,193. Expenses £80,823, a decrease of £4,136 ; gross profit £21,889. After various charges, there is a deficiency of £1,031, to be added to last year's deficit of £4,163. On the working of the omnibuses there is a loss of £488.

Lincoln Municipal Transport.—This undertaking for the past year had a deficit of £3,082 (which included £1,562, the balance of the cost of five omnibuses), compared with a net profit the previous year of £1,568. Net capital charges included some liabilities for the tramways, and, eliminating these, there was a net profit of £2,146. The passengers totalled 6,280,000.

Digitized by Google

Oldham Tramways and Omnibus Department report a loss on the past year of £4,760 on the tramways and a loss of £20,072 on the omnibuses, and a sub-committee is investigating the question of fares for consideration of the Town Council.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended June 11 amounted to £87,151, an increase of £2,951 compared with the corresponding week of last year. The route length was 165.60 miles, as compared with 166.29 a year ago. From April 1 (the commencement of the financial year) to June 11 (10 2-7 weeks), the total receipts were £860,331, a decrease of £1,357.

Barcelona Traction Ordinary Dividend.—The directors of the Barcelona Traction, Light and Power Co. have declared a dividend of 50 cents per share on ordinary shares of no par value. This is the first dividend since the unification of the share capital. In future the directors intend to make a payment of dividend (provided the situation justifies it) in February, June and October each year.

Municipal Transport Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended May 24 give total receipts of £429,556, or £28,831 less than in the corresponding week of last year. The aggregate receipts for eight weeks amounted to £3,330,362, an increase of £51,216 over the corresponding period of last year.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

Name.	Week ended	Latest Return. 1929	1930	+ or −	Aggregate. Wks.	1930	+ or −
		£	£	£		£	£
Aberdare U.D.C.	May 27	743	681	— 62	8	4,765	— 152
,, Motor Buses	,, 27	273	266	— 7	8	2,334	+ 184
,, Total	,, 27	1,016	947	— 69	8	7,099	+ 32
Aberdeen Corp.	,, 31	6,790	7,519	+ 729	52½	256,604	+ 19,745
Ashton-u-Lyne Corp.	June 7	892	846	— 46	10	8,526	— 633
,, Motor Buses	,, 7	469	485	+ 16	10	5,014	+ 9
,, Trolley Buses	,, 7	273	263	— 10	10	2,097	— 145
,, Total	,, 7	1,634	1,594	— 40	10	16,237	— 769
Ayr Corporation	,, 7	532	550	+ 18	3	1,781	— 155
Barrow Corporation	May 31	660	579	— 81	9	4,967	— 593
,, Motor Buses	,, 31	334	388	+ 54	9	3,292	+ 608
,, Total	,, 31	994	967	— 27	9	8,259	+ 15
Belfast City	June 6	12,559	12,114	+ 555	9½	111,735	+ 4,939
,, Motor Buses	,, 6	1,079	1,410	+ 331	9½	13,216	+ 2,735
,, Total	,, 6	12,638	13,524	+ 886	9½	124,951	+ 7,674
Birkenhead Corp.	,, 8	1,658	1,676	+ 18	10	15,739	— 1,125
,, Motor Buses	,, 8	3,283	3,896	+ 613	10	33,900	+ 1,767
,, Total	,, 8	4,941	5,572	+ 631	10	49,639	+ 642
Birmingham Corp.	,, 3	27,621	26,809	— 812	9	243,669	— 2,712
,, Motor Buses	,, 3	12,844	15,433	+ 2,589	9	138,897	+ 26,369
,, Trolley Buses	,, 3	548	563	+ 15	9	5,151	+ 228
,, Total	,, 3	41,013	42,805	+ 1,792	9	387,717	+ 23,885
Blackburn Corp.	,, 4	1,978	1,813	— 165	9⅜	17,253	— 1,266
,, Motor Buses	,, 4	Nil	300	+ 300	9¼	3,034	+ 3,034
,, Total	,, 4	1,978	2,113	+ 135	9⅜	20,287	+ 1,768
Bradford Corporation	,, 7	14,603	14,643	+ 40	10	138,494	— 8,923
Brighton Corporation	,, 8	2,367	2,873	+ 506	9⅝	24,497	+ 1,162
Burnley Corporation	,, 7	3,020	2,691	— 329	---	---	---
,, Motor Buses	,, 7	608	669	+ 61	---	---	---
,, Total	,, 7	3,628	3,360	— 268	---	---	---
Burton-on-Trent Corp.	,, 8	818	837	+ 19	10	8,418	+ 523
Bury Corporation	,, 8	1,913	1,920	+ 7	9⅔	18,355	— 3,133
,, Motor Buses	,, 8	419	1,098	+ 679	9⅔	10,638	+ 6,805
,, Total	,, 8	2,332	3,018	+ 686	9⅔	28,993	+ 3,762
Cardiff Corporation	May 31	7,633	7,591	— 42	8⅔	67,673	+ 1,170
Chatham and District	June 5	1,056	1,142	+ 86	22	23,962	+ 1,067
Chester Corporation	,, 8	421	Nil	— 421	10	Nil	— 4,548
,, Motor Buses	,, 8	Nil	646	+ 646	10	6,418	+ 6,418
,, Total	,, 8	421	646	+ 225	10	6,418	+ 1,870
Chesterfield Corp.	,, 9	1,768	2,395	+ 627	10	18,524	+ 905
Colchester Corp.	,, 4	518	594	+ 76	10	5,078	+ 431
Colne Corporation	,, 11	719	878	+ 159	10	7,439	+ 74
Coventry Corporation	,, 8	2,059	2,049	— 10	10	20,589	— 1,148
,, Motor Buses	,, 8	1,516	1,863	+ 347	10	18,241	+ 2,509
,, Total	,, 8	3,575	3,912	+ 337	10	38,830	+ 1,361
Darlington Corp.	,, 7	971	1,052	+ 81	9⅝	10,208	+ 871
Derby Corporation	,, 7	2,477	2,471	— 6	10	24,117	— 473
,, Motor Buses	,, 7	680	933	+ 253	10	8,919	+ 2,522
,, Total	,, 7	3,157	3,404	+ 247	10	33,036	+ 2,049
Dover Corporation	,, 7	371	402	+ 31	10	3,711	+ 101
Dundee Corporation	May 27	3,457	3,415	— 42	1⅞	5,948	— 527
East Ham Corp.	June 7	2,279	2,308	+ 29	9⅔	22,597	+ 442
Edinburgh Corp.	May 31	15,399	14,973	— 426	2⅔	36,619	— 1,689
,, Motor Buses	,, 31	3,587	3,810	+ 223	2⅔	9,262	+ 201
,, Total	,, 31	18,986	18,783	— 203	2⅔	45,881	— 1,488
Exeter Corporation	June 11	840	927	+ 87	11	8,579	— 438
Glasgow Corporation	May 31	47,211	45,800	— 1,411	52	2,312,741	+ 32,804
,, Motor Buses	,, 31	5,308	2,943	— 2,425	52	349,232	+ 164,972
,, Total	,, 31	52,579	48,743	— 3,836	52	2,661,973	+ 197,776
Gloucester Corp.	June 4	583	695	+ 112	9⅞	6,399	+ 1,361
Grimsby Corporation	,, 7	1,314	1,520	+ 206	10	14,650	+ 1,676
Halifax Corporation	,, 3	4,485	5,096	+ 611	9½	46,720	+ 4,061
Huddersfield Corp.	,, 7	6,270	6,251	— 19	10	62,664	— 2,564
Hull Corporation	,, 7	5,772	5,711	— 61	10	57,250	— 517
,, Motor Buses	,, 7	1,319	1,410	+ 91	10	13,875	+ 1,049
,, Total	,, 7	7,091	7,121	— 30	10	71,125	+ 532
Ilford Corporation	,, 7	1,469	1,541	+ 72	9⅞	14,836	+ 438
Ipswich Corp. Trol.Bus	,, 7	1,231	1,353	+ 122	9⅞	12,698	— 652
Isle of Thanet	,, 4	688	634	— 54	22	9,626	— 730
Kilmarnock Corp.	,, 7	448	474	+ 26	3⅛	1,622	+ 1
Lancashire Un.	,, 1	2,158	2,069	— 89	21⅝	41,232	— 2,201
,, Motor Buses	,, 1	4,174	4,675	+ 501	21⅛	101,921	+ 14,502
Leeds Corporation	May 31	19,755	20,634	+ 879	8⅜	174,299	+ 3,785
Leicester Corp.	June 7	8,433	8,786	+ 353	10	82,641	+ 1,869
Lincoln Corp.	,, 1	910	912	+ 2	9	8,146	— 75
Liverpool Corp.	,, 7	29,329	30,562	+ 1,233	9⅝	293,354	+ 3,067
London County Coun.	,, 11	84,200	87,151	+ 2,951	10⅛	860,331	— 1,357
Luton Corporation	,, 4	404	425	+ 21	9⅛	4,026	+ 254
Maidstone Corp.	,, 5	207	Nil	— 207	9⅛	Nil	— 2,432
,, Motor Buses	,, 5	261	271	+ 10	9⅛	2,611	— 32
,, Trolley Buses	,, 5	281	562	+ 281	9⅛	5,994	+ 3,055
,, Total	,, 5	749	833	+ 84	9⅛	8,605	+ 591
Manchester Corp.	May 31	35,386	33,208	— 2,179	9	284,163	— 23,737
,, Motor Buses	,, 31	5,115	8,826	+ 3,711	9	73,621	+ 30,198
,, Total	,, 31	40,501	42,034	+ 1,533	9	357,784	+ 6,461
Middlesbrough Corp.	June 3	1,094	1,036	— 58	9¼	9,761	— 679
,, Motor Buses	,, 3	492	580	+ 88	9¼	5,087	+ 482
,, Total	,, 3	1,586	1,616	+ 30	9¼	14,848	— 197

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS—*Continued.*

Name.	Week ended	Latest Return. 1929	1930	+ or −	Aggregate. Wks.	1930	+ or −
		£	£	£		£	£
Newcastle-on-Ty.Corp.	June 7	10,031	8,548	— 1,483	9⅔	84,761	— 8,773
,, Motor Buses	,, 7	2,045	2,940	+ 895	9⅔	25,381	+ 5,499
,, Total	,, 7	12,076	11,488	— 588	9⅔	110,142	— 3,274
Newport Corporation	May 31	1,693	1,561	— 132	9	14,310	— 293
,, Motor Buses	,, 31	738	761	+ 23	9	7,186	+ 541
,, Total	,, 31	2,431	2,322	— 109	9	21,496	+ 248
Northampton Corp.	June 6	1,051	1,080	+ 29	9⅛	10,671	— 456
,, Motor Buses	,, 6	652	783	+ 131	9⅛	6,996	+ 1,119
,, Total	,, 6	1,703	1,863	+ 160	9⅛	17,667	+ 663
Nottingham Corp.	,, 5	6,629	5,660	— 969	9⅛	54,248	— 8,360
,, Motor Buses	,, 5	2,238	3,342	+ 1,104	9⅛	30,589	+ 9,273
,, Trolley Buses	,, 5	597	1,210	+ 613	9⅛	11,312	+ 5,652
,, Total	,, 5	9,464	10,212	+ 748	9⅛	96,149	+ 6,565
Oldham Corporation	,, 7	3,484	3,414	— 70	11	37,129	— 2,379
,, Motor Buses	,, 7	1,917	2,014	+ 97	11	21,804	— 418
,, Total	,, 7	5,401	5,428	+ 27	11	59,023	— 2,797
Plymouth Corp.	,, 7	3,548	3,660	+ 112	9⅝	35,160	— 701
,, Motor Buses	,, 7	1,820	2,451	+ 631	9⅝	22,941	+ 4,775
,, Total	,, 7	5,368	6,111	+ 743	9⅝	58,101	+ 4,074
Portsmouth Corp.	,, 8	5,622	7,417	+ 1,795	10	66,497	+ 8,335
Preston Corporation	,, 4	1,695	1,640	— 55	9⅛	15,411	— 918
,, Motor Buses	,, 4	462	509	+ 47	9⅛	4,728	+ 233
,, Total	,, 4	2,157	2,149	— 8	9⅛	20,139	— 685
Rawtenstall Corp.	,, 8	844	617	— 227	9⅞	6,898	— 1,722
,, Motor Buses	,, 8	541	704	+ 163	9⅞	6,802	+ 1,630
,, Total	,, 8	1,385	1,321	— 64	9⅞	13,700	— 92
Reading Corporation	,, 5	1,461	1,503	+ 42	10	13,408	— 678
,, Motor Buses	,, 5	870	1,237	+ 367	10	9,390	+ 978
,, Total	,, 5	2,331	2,740	+ 409	10	22,798	+ 300
Rochdale Corp.	,, 7	2,877	3,228	+ 351	---	27,278	— 2,617
,, Motor Buses	,, 7	1,468	1,558	+ 90	---	15,509	+ 543
,, Total	,, 7	4,345	4,786	+ 441	---	42,787	— 2,074
Rotherham Corp.	,, 2	2,610	2,763	+ 153	9	25,171	+ 1,108
Salford Corporation	,, 8	10,930	11,674	+ 744	9⅛	112,116	+ 2,026
Sheffield Corp.	,, 7	20,513	19,974	— 539	9⅔	207,458	— 298
Southampton Corp.	,, 4	3,736	3,424	— 312	10	31,241	— 23
,, Motor Buses	,, 4	816	872	+ 54	10	8,125	+ 1,609
,, Total	,, 4	4,552	4,296	— 256	10	39,366	+ 1,586
Southend-on-Sea Corp.	,, 11	2,149	2,845	+ 696	10⅛	20,590	— 709
,, Motor Buses	,, 11	156	397	+ 241	10⅛	2,760	+ 1,279
,, Total	,, 11	2,305	3,242	+ 937	10⅛	23,350	+ 570
Southport Corp.	,, 7	1,255	1,276	+ 21	9⅛	12,267	— 466
,, Motor Buses	,, 7	331	393	+ 62	9⅛	3,812	+ 276
,, Total	,, 7	1,586	1,669	+ 83	9⅛	16,079	— 190
St. Helens Corp.	,, 3	1,869	1,947	+ 78	9¼	18,427	+ 1,186
Sunderland Corp.	,, 10	2,370	3,058	+ 688	10	24,848	+ 1,020
,, Motor Buses	,, 10	200	679	+ 479	10	4,839	+ 4,026
,, Total	,, 10	2,570	3,737	+ 1,167	10	29,687	+ 5,046
Swindon Corp.	,, 4	669	957	+ 288	9⅛	8,948	+ 2,164
Wallasey Corp.	,, 7	1,303	1,270	— 33	9⅔	11,758	— 1,155
,, Motor Buses	,, 7	1,947	2,376	+ 429	9⅔	21,209	+ 2,005
,, Total	,, 7	3,250	3,646	+ 396	9⅔	32,967	+ 850
Walsall Corporation	,, 1	3,167	3,333	+ 166	9	31,476	+ 344
Walthamstow Corp.	,, 7	2,415	2,496	+ 81	9⅔	23,947	— 260
Warrington Corp.	,, 5	876	882	+ 6	10	8,878	+ 32
,, Motor Buses	,, 5	443	496	+ 53	10	4,934	+ 548
,, Total	,, 5	1,319	1,378	+ 59	10	13,812	+ 580
West Ham Corp.	,, 5	5,872	6,256	+ 384	9⅔	58,503	+ 1,310
Wolverhampton Corp.							
,, Motor Buses	,, 1	2,572	2,314	— 258	9	21,535	— 4,408
,, Trolley Buses	,, 1	3,256	3,428	+ 172	9	31,558	+ 1,799
,, Total	,, 1	5,828	5,742	— 86	9	53,093	— 2,609
York Corporation	,, 4	987	1,048	+ 61	10	9,543	+ 307
,, Motor Buses	,, 4	361	516	+ 155	10	4,697	+ 1,253
,, Trolley Buses	,, 4	42	Nil	— 42	10	Nil	— 422
,, Total	,, 4	1,390	1,564	+ 174	10	14,240	+ 1,138

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

Name.	Week or M'th.	Latest Return. 1929	1930	Aggregate. Wks. or M	1930	In. or Dec.
Anglo-Argentine	June 10	£85,502	£87,146	23 w	£1,941,124	— £81,437
Brazilian Traction $	Apr.	4,042,145	4,127,492	4 m	15,835,315	+ 216,078
British Columbia $	Apr.	1,205,482	1,213,993	10 m	12,324,706	+ 575,871
Buenos Aires Lacroze	June 8	10,913	11,786	49 w	575,382	— 41,650
Burma E. Sup. Co. Rs.	Apr.	64,744	65,482	9 m	577,208	— 22,269
Calcutta ... Rs.	June 7	122,024	100,609	22½ w	2,615,502	— 296,772
Cape Town	Apr.	20,244	27,500	...	...	...
Carthagena & Herrerias	May	725	552	5 m	5,097	+ 752
Durban	Apr.	25,603	24,002	9 m	214,538	— 141
East India	May	3,862	3,698	10 m	37,824	+ 407
Kalgoorlie	Mar.	1,682	1,710	3 m	4,601	— 45
Madras (2 weeks) Rs.	May 31	42,674	42,494	20 w	460,239	+ 27,958
Para	Apr.	15,060	15,564	5 m	73,211	+ 785
Port Elizabeth ...	Apr.	7,877	7,521	...	...	...
Rangoon ... Rs.	May	121,040	149,440	5 m	757,465	+ 163,189
Shanghai ... $	Apr.	336,624	308,840	4 m	1,372,502	+ 82,225
Singapore ... ...$	Apr.	131,000	137,000	7 m	935,000	+ 108,000
Winnipeg ... ...$	Apr.	536,033	516,132	4 m	2,283,837	— 3,549

RAILWAY RECEIPTS.

23rd Week ended June 8th	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week.	Inc. or Dec. to Date.
G.W.R.	289,000	+ 46,000	340,000	— 25,000	629,000	+ 21,000	— 332,000
L.M.S.R.	664,000	+ 132,000	745,000	— 85,000	1,409,000	+ 47,000	—1,133,000
L.N.E.R.	394,000	+ 49,000	565,000	— 73,000	959,000	— 24,000	— 524,000
S.R.	395,000	+ 54,000	90,000	— 6,000	485,000	+ 48,000	— 103,000
Totals	1,742,000	+ 281,000	1,740,000	— 189,000	3,482,000	+ 92,000	-2,092,000

ELECTRIC RAILWAYS.

Name.	Week Ended.	Latest Return. 1929.	1930.	+ or −	Aggregate. 1930.	+ or −
London Underground						
Common Fund Cos.	June 7	295,600	319,500	+ 23,900	6,817,100	+ 452,100
Lond. & Sub. Group	,, 7	42,900	46,700	+ 3,800	990,100	+ 78,800
Metropolitan Railway	,, 7	36,300	38,000	+ 1,700	843,200	+ 21,400
Liverpool Overhead	,, 8	1,609	1,459	— 150	34,411	— 2,154
Mersey Railway ...	,, 7	4,163	4,518	+ 355	107,312	+ 3,364

Digitized by Google

THE Tramway & Railway World
WITH OMNIBUS & COACH SECTION
Founded 1892 LONDON, JUNE 19, 1930 VOL. LXVII

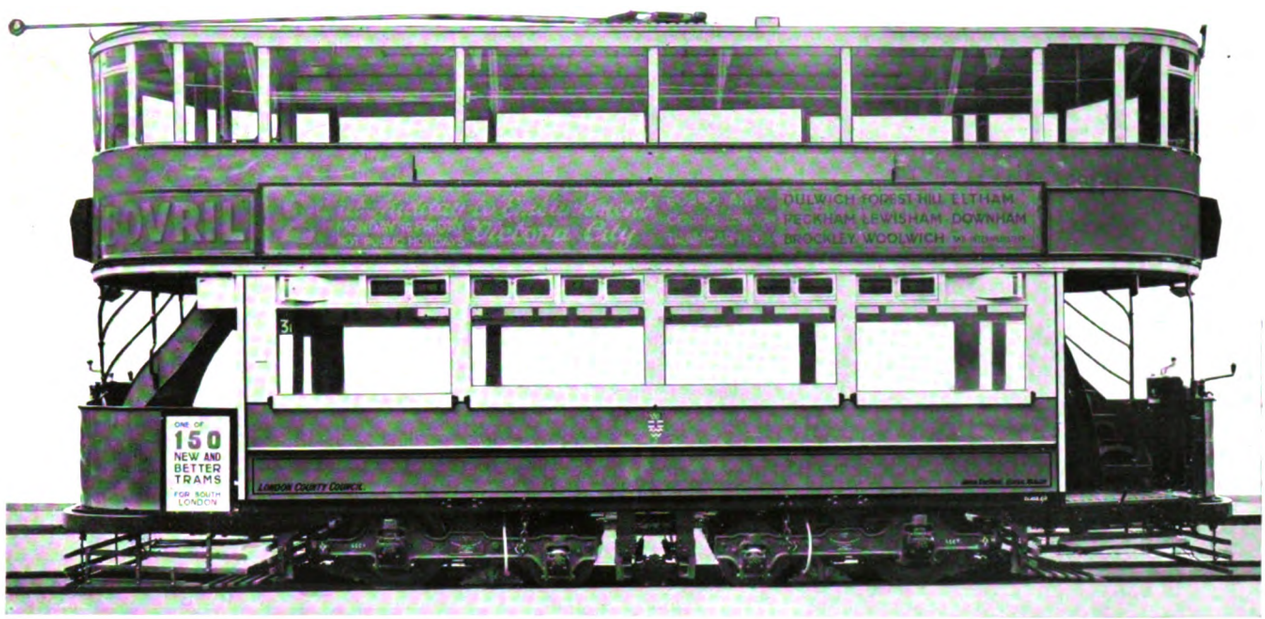
NEW CARS FOR LONDON COUNTY COUNCIL TRAMWAYS.

A STANDARD BODY OF GREATER LUXURY THAT IS ALSO TO BE OPERATED ON HILLY ROUTES.

The London County Council Tramways Department is now placing in service in South London one hundred and fifty new bogie truck cars. This commendable enterprise is a continuation of the policy of providing the Metropolis with the best possible rolling stock, giving the utmost passenger comfort and the highest permissible speed, a policy that in three years has transformed the financial results. The new cars may be regarded as the largest fleet of double-deck vehicles of such great attractiveness in this country. That statement implies that they surpass the 1,450 cars of Pullman standard of comfort already in operation. Indeed, the superiority is very marked, and is the outcome of the watch that has been kept by the general manager, the traffic manager and the staff upon the running of the cars and the wear of the fittings. Of the 150 cars, one hundred will be of the E3 standard type shown in the drawings on pages 297 and 298. The remainder will be the HR2 type for hilly routes. Trucks and equipment of the two types differ, but the bodies are identical.

In giving this order for 150 cars the Council in July of last year had the distinction of ordering the largest fleet in the United Kingdom, that total exceeding by 25 the record of 125 which the authority had held since 1921, when two 60 H.P. motors were introduced per car to give greater speed and acceleration. The contractors for the 150 double-deck bodies are Hurst, Nelson & Co., and the English Electric Co.; for the bogie trucks, the Electro-Mechanical Brake Co.; for the electrical equipments, the English Electric Co., and the Metropolitan-Vickers Electrical Co.; and for the magnetic track and wheel-brake equipment, Estler Bros., the total value of the contracts being £452,002.

The type of car designated HR2 is the outcome of experience with the hilly routes (HR) vehicle which was introduced on a South London line in the early part of last year, the truck and body being described and illustrated in THE TRAMWAY AND RAILWAY WORLD of April 18, 1929. That car marked a great advance on the standard car which had been evolved since the war, and its working has been found to be so satisfactory that little or no visible alteration has been made in HR2, which car is now in service. The eye of the passenger will pick out as the most prominent details two innovations that were first made in the experimental car. One is the upholstering of the seat backs as well as the seats themselves in the top saloon; another is the division of the Windsor balance side-lights of that apartment into half-drop



Standard Car of the L.C.C. with Passenger-Operated Top Deck Windows of Non-Splinter Glass.

Digitized by Google

windows which are individually operated in their upper portions. They can be pushed up or down by pressure of the thumb. C. D. Peters & Co. supplied these windows, as well as the seats in the two types of car.

A departure of the highest importance is the use of non-splintering safety glass of an approved manufacture for all the main side windows of the upper deck and for the conductor's look-out windows on that deck.

The seating on both decks is all that can be desired. In the lower saloon the upholstering is in moquette velvet, while for the top deck seats non-inflammable red leather cloth is used. All seats are well stuffed and have flexible springs. The padding protects passengers from the discomfort that would be caused by the body coming into contact with the seat frame. Seat backs have a black non-tarnishable edging which prevents the moquette or leather cloth showing the signs of wear that became apparent in the early experiments in upholstering. Another improvement is that the seats can be easily reversed without noise.

As was also the case with the first HR car, the interior of the top saloon is 5 in. wider, giving each of the 46 passengers more room and a wider gangway. The seating allowance throughout the car may be given roughly as 16 in. per passenger, except in the case of the single seats on one side of the lower saloon, where the allowance is 17¼ in. Transverse seats on the other side of the gangway are 33¼ in.; upstairs the seat width on each side is 32 in.

The gain of 5 in. to the interior width of the top deck has been secured without any change in the width of the exterior. This is due to the fact that the framing of the upper deck is of a new and interesting type, consisting almost entirely of inter changeable metal parts. These parts are so arranged as to secure, within the same external overall width as on the present standard car, the already mentioned additional internal width of 5 in. for each pair of transverse seats. There are eight pairs of these seats, each pair being slightly staggered and having a grab handle which is a continuation of the black border. In addition to the 32 passengers thus provided for, each end of the saloon over the platforms accommodates seven persons, four on the staircase side and three opposite, a total of 46. An upholstered back rest is provided to each of these end seats. Passengers on the top deck will be glad to find that grab handles do not constitute the only aid for passing along the top deck when the car is in motion. The more convenient overhead rail is also provided.

It is in the lower saloon that the gain of one seat in the total accommodation has been made over that given in existing standard cars converted into Pullmans. The number now is 28, as against 27. The method adopted to obtain this extra seat may give rise to criticism. In place of five transverse seats on each side there are four double seats and four single seats. Thus there are three fewer of the cross-seat-places which contribute largely to the popularity of the Pullman cars. By this removal of a seat on each side of the car the longitudinal seats at each end of the saloon are each made to accommodate four persons instead of three. Criticism of this arrangement may be based on the fact that few passengers intent upon a long journey will remain on a longitudinal seat if a cross-seat becomes vacant.

Ventilation improvements are noticeable in both saloons. In addition to the ordinary ventilators above the four long windows of the lower saloon, there are Ashanco air extractors at each end of the car and in line with the ventilators. There are also the customary perforations over the doors, and the slatted aperture above one window in each bulkhead, the volume being regulated according to the extent to which the window is open. It is stated that in this saloon during inclement weather the air will be changed without draught at least every two minutes, even if the main ventilators are closed. In hot weather there can be at least three times more fresh air than with the old standard car. Venturi air extractors in the roof will change the air constantly in the upper saloon, where there is the additional advantage of divided drop windows that can be operated with the fingers.

A non-slip linoleum floor improves the appearance of the lower deck. The hatch coverings which give access to the motors, etc., are edged with metal. One feature of the car is the provision which has been made to prevent draught at the floor level by means of non-slipping tread and check plates at the doors on each deck. Air signal bells fitted in an improved manner are provided in the lower saloon and on the platforms.

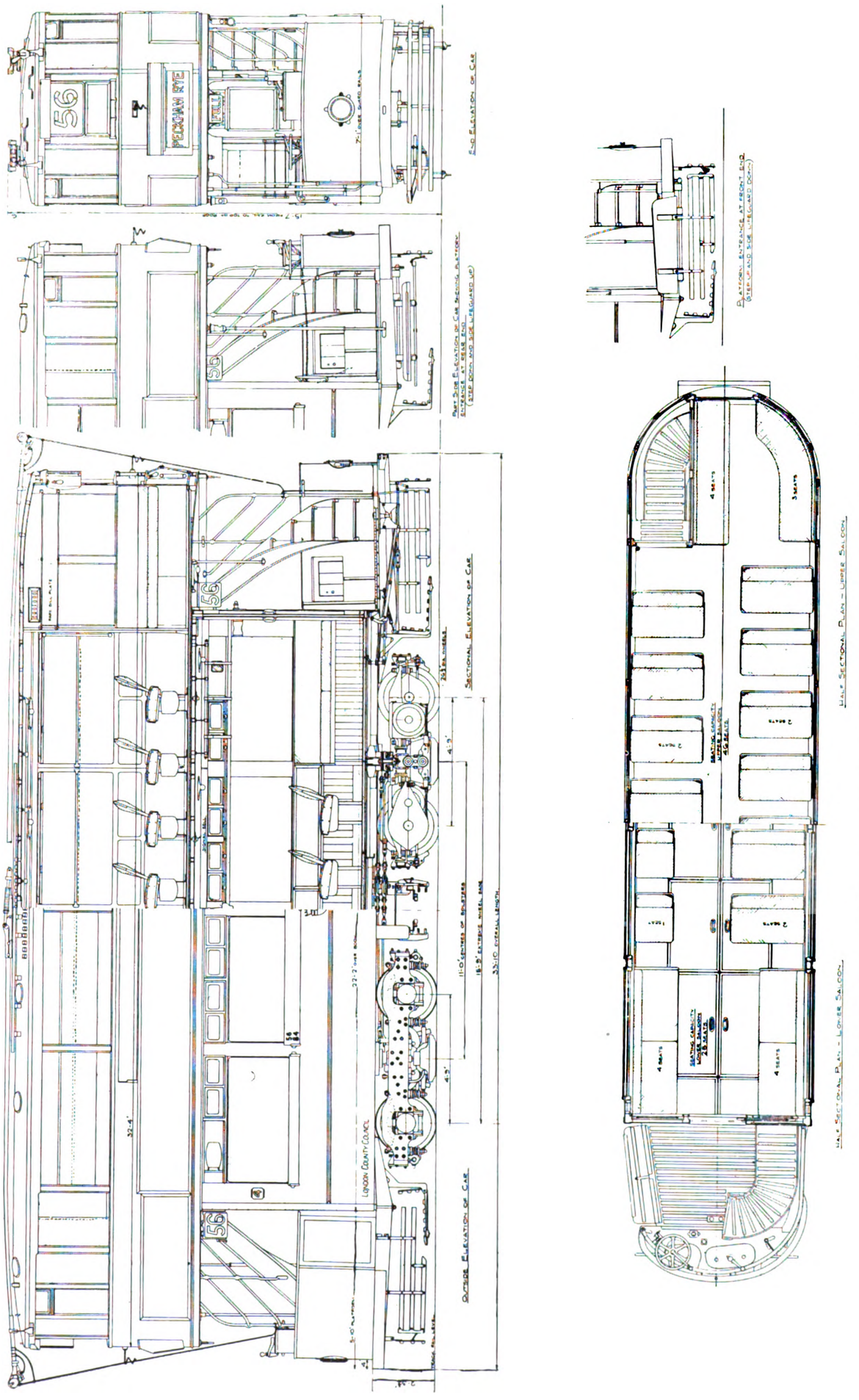
Internal decoration is both pleasing and simple. In the lower saloons there is panelling of mahogany of rich, warm tone, with woodwork of a dark rosewood colour below the level of the seats, this insertion also being made between the top deck seats. In the upper saloon the panelling is treated with a combination of light and antique oak. In both compartments the ceilings are of white enamel, giving the finishing touch of brightness to the decorative scheme. The white enamel ceilings also add to the effect of the brilliant electric lighting. Each saloon has ten lighting points with 40-watt lamps, suitable for use five in series on circuits operating at pressures varying from 500 to 600 volts, the lamps being made by Siemen's Electric Lamps and Supplies, Ltd. The destination indicators have six lamps each, while the service numbers take four lamps in each box.

Pillars and rails employed for the end framing of the main saloon are of Moulmein teak, which is also used for the intermediate side frames for carrying the windows of those saloons. The exterior of the main saloon bodies at each end are panelled in Honduras mahogany. The framing of the upper deck consists principally of a series of die frame or equivalent castings in Alpax non-ferrous metal, having a tensile strength of approximately 10 per cent. in a length of 2 in. The external panels for the roof covers consist of hard rolled sheets of aluminium alloy, fitted in one complete width and not more than three lengths on each side. These panels are 22 S.W.G. in thickness and weigh approximately 0.4 lb. per superficial foot.

The outside panelling of the upper saloon consists of high tensile aluminium alloy plates. The panelling of the lower saloon is structurally component with the framing of the car, and consists of specially rolled selected mild steel plates having a tensile strength of 28 to 32 tons per square inch. This plan affords greater stability and facilitates body cleaning.

As a contribution towards economy of labour in car cleaning no polished tubes, rods or fittings are utilised. All such things are of one or other of approved materials, non-inflammable and having a polished hard surface. The ratchet brake handles and hand wheels, too, have been so treated. Even the platform guard chains are rust-proof. Front and side lifeguards are fitted to each platform, these appliances being manufactured by Hurst, Nelson & Co., Ltd. At each end of a car are fitted two of the "Ever-Ready" rotary

Digitized by Google


56
PECKHAM RYE
LONDON COUNTY COUNCIL
End Elevation of Car
Part Side Elevation of Car showing Platform Entrance at Front End (Step Down and Side Lifeguard Up)
Platform Entrance at Front End (Step Up and Side Lifeguard Down)
Sectional Elevation of Car
Outside Elevation of Car
Half Sectional Plan - Upper Saloon
Half Sectional Plan - Lower Saloon

Top: Outside, Sectional, Part Side and End Elevations of E3 Car of the London County Council.
Lower: Half Sectional Plans of the Saloons and Plan of Platform with Step raised.

Digitized by Google

type of sand box by Brecknell, Willis & Co., Ltd. The hoppers are so placed as to ensure that the sand is directed right under the tread of the wheels.

Painting of the bodies is in the standard colours of the London County Council, namely vermilion and cream. Following the experiments with a lower deck vestibule fitted to a standard car during the past three months, the Council has decided to fit some of the new cars with such vestibules.

Of the 150 cars ordered, 50 are for hilly routes and 100 Class E3 type for general traffic. The HR2 cars are each fitted with four of the Metropolitan-Vickers Electrical Company's special No. MV109 motors, each unit rated at 30 H.P. on the one hour basis until 525 volts at the terminale of each "truck pair" of machines. The E 3 cars have two of the English Electric Company's DK 126A motors, each rated at 57·5 H.P. on the one hour basis until 525 volts at the terminals of each machine. When operating direct from each armature shaft through a single-reduction gear on to four driving wheels (each of which measure 31¾ in. diameter on the tread when new) the pair of motors on Class E3 cars is, with 525 volts across the terminals, of such capacity as to accelerate a double-decked, roof-covered car which weighs not less than 20 tons on the journals when loaded, at a rate of not less than 3 ft. per second, up to a speed of 12 M.P.H. This requirement is over a level track with a clean, wet or dry rail, and under similar conditions the pair of motors is required to maintain a free running speed on a level track of not less than 30 M.P.H.

For HR2 cars four motors are permanently electrically coupled in series as unit pairs so that operation of the cut-out temporarily eliminates 50 per cent. of the tractive capacity of the car, exactly as is the case with normal two-motor equipments. Each of these motors when operating direct from the armature shaft through a single-reduction gear on to a pair of driving wheels measuring 26½ in. diameter on the treads when new, with 525/2 volts across the terminals, is capable of accelerating the car at a rate of not less than 3 ft. per second up to 12 M.P.H., over a level track with a clean wet or dry rail, and to maintain a free-running speed of 12 M.P.H. up a gradient of 1 in 11.

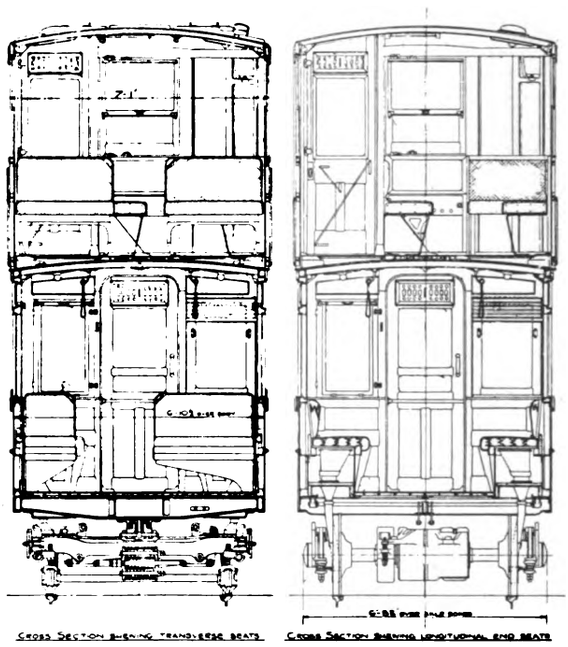
The combined electro-magnetic track and wheel-brakes have electrical equipments so designed that each unit motor for Class E3, or coupled pair of motors for Class HR2 cars, will build up a satisfactory field for the purpose of energising the magnet brake circuit when the car, either loaded or empty, is travelling at any speed in excess of an absolute minimum of 2 M.P.H.

Under all conditions the magnetic brake is the service brake. Motors and equipments are respectively so designed as positively to ensure that an ordinary application of the magnetic brake on a fully loaded car of either type, travelling on the level track at 25 M.P.H., will, over a clean wet rail, cause the car to be retarded at an average rate of at least 6 ft. per second, to rest. At 8 M.P.H. the retardation is at an average rate of at least 5 ft. per second to rest, without (at both of the speeds mentioned) locking or skidding of any wheels, or flashing over at the commutators, or in any way disturbing the general efficiency of the equipment.

The teeth of the gears for E3 cars are of the single straight involute form with a pressure angle of 20 deg., and those for HR2 cars are of the single helical form. The gear wheels generally are of the solid centre type with shrunk-on rims.

For E3 cars the controllers are of series-parallel cam-operated contactor type suitable for operating the two motor equipments. Seven contact points are provided in each controller for the operation of the magnetic brakes and all so arranged that the brake circuit is totally disconnected from the power circuit in any and all positions of these contacts. The connections are so arranged that all circuits (except such as are specially provided for non-run-back braking) are open when the controller is in the "off" position, also that both poles are insulated, the brake contact isolated from power so that no accidental disconnection in the circuit of a single motor will render the magnetic brake inoperable, and also that the magnetic brake is available for operation, on all magnets, when either one of the motors is cut out of circuit. Non-run-back brake connections ensure that in the event of one motor being cut out of circuit the other is automatically brought into circuit.

The controllers for HR2 cars are also of the series-parallel type, specially arranged to be suitable for the operation of cars equipped with four motors (in two coupled pairs) together with magnetic brakes in such a manner as to provide for magnetic braking in either a forward or backward direction of travel in relation to the driving end of the vehicle, without the need for a corresponding re-setting by the motorman of the controller reverse key. Thus with the controller driving handle in the "off" position one pair of the motors is so connected as to act as an efficient brake in the event of a car slipping backwards on a down grade. The motor connections provide crossed field braking, and are so grouped that a fault in any one motor circuit will not interfere with the braking of the remaining sound pair of motors.



Cross Sections showing Transverse and End Seats.

The controllers are constructed on the camshaft contact principle, conveniently arranged for easy manual operation, in a similar manner, so far as exterior movements are concerned, to the general practice as followed with modern types drum and finger controllers. They are so balanced and adjusted as to ensure that at no point on the arc through which the operating handle is to be moved a physical effort in excess of 20 lb. as applied to the handle in a normal operating manner need be exerted by the motorman.

Two trolley arms are fitted to each car, thus ensuring

Digitized by Google

Completely Upholstered and Wider Seats in the Top Deck Saloon (6ft. 0¾ in. high) of the new L.C.C. Cars.

The Increased Attractiveness of the Lower Saloon, which has a Height of 6ft. 2in.

Digitized by Google

that passengers do not alight in darkness at a terminus, and safeguarding the conductor from traffic risks. There is also the necessary equipment for changing over from trolley to conduit traction.

Turning to the trucks, the hundred double-bogie sets ordered for the E3 cars are of the plain bushed centre-bearing swing bolster type with cast steel side frames. The wheel-base of a truck is 4 ft. 6 in., the approximate distance between the pivotal centres being 13 ft. 2½ in. The minimum radius of curve (taken at the centre line) to be negotiated by these trucks and by those supplied for the HR2 cars is 40 ft. The HR2 car has trucks of the ball-race centre-bearing swing-bolster type, having side frames of mild steel. The wheel-base is 4 ft. 9 in., and the approximate distance between pivotal centres is 11 ft.

Axle boxes are of special quality tough cast iron specially designed, in conjunction with roller bearings, to suit the conditions of bogie tramcars, operating at speeds up to 30 M.P.H., with a service load on the axles of 20 tons. It was a condition of the contracts that the bearings were to be made by firms who have a reputation for such products, operated satisfactorily over extended periods of use in Great Britain, under intensive railway and tramway service conditions equivalent to those maintained during the past five years within a radius of twenty miles from London, Manchester or Birmingham. The bearings are to be capable of giving a life service equivalent to at least 500,000 miles, receiving attention in regard to lubrication, etc., not more frequently than once in each 20,000 miles run.

Motor suspension gear prepared to receive the three-point suspension motors was provided with the trucks and is cushioned by rubber pad or other springs. On E3 cars the driving axles have a diameter of 5 in. and the pony axles 4 in. Axles on the HR2 cars are 4½ in. diameter.

From the foregoing it will be seen that HR2-type car has bogie trucks with wheels of equal size, all four wheels of each truck being used for driving, each truck having two motors. This arrangement enables the cars to be driven safely at adequate speeds on gradients of 1 in 10. In the first car of this type, already described in these pages, this maximum traction capacity was secured by an entire re-arrangement of the truck to give an increase of the extreme wheel-base to 16 ft. It was hoped that this alteration would also result in additional steadiness of running. The increase in truck length enabled supplementary springs to be added between the body and the wheels, for the purpose of lessening road shocks. The hope referred to has been realised, with a reduction of the extreme wheel-base from 16 ft. to 15 ft. 9 in.

L.C.C. Holiday Traffic Record.—During the Whitsun holidays the London County Council Tramways carried over six million passengers, establishing a new record. It is believed that a record was also made for the sale of ride-at-will tickets. The tramway companies associated with the Underground ran services to numerous resorts and to greyhound race centres. The Underground Group ran express motor coaches to Windsor from Charing Cross, to Watford from Charing Cross and Golders Green, and half-day tours from suburban centres.

Success of Glasgow's Pullman Cars.—Mr. Dollan, convenor of the Glasgow Corporation Transport Committee, in explaining the remarkable increase in omnibus traffic during the past year, said the Committee had placed on the roads many up-to-date omnibuses and had tapped districts hitherto unprovided for. The increase in tramway takings, he said, was remarkable in view of the competition, not only from outside, but from the department's own omnibuses. He claimed that the increase was almost entirely due to the reconditioned cars introduced during the past three years.

LIGHT-WEIGHT MANCHESTER CAR.

Forty to be Built with Various Improvements, Including the "Tong" Brake.

Weight reduction is a feature of a new type of single truck car recently put into service by the Manchester Corporation Transport Department. By the use of duralumin in the underframe and the supports for the body, and by careful design throughout, the weight has been reduced to 11 tons 1 cwt., or 399 lbs. per seat, for a double deck vestibule four-wheel car, seating 62 passengers. The chief dimensions and particulars are appended :—

Length over fenders	32 ft. 6 in.
Length of body	19 ft. 2 in.
Overall width	6 ft. 10 in.
Width inside car (lower saloon)	6 ft. 2 in.
Width inside upper saloon at the level of seat cushion	6 ft. 8¾ in.
Height inside lower saloon	6 ft. 6¼ in.
,, ,, upper saloon	6 ft. 1½ in.
Seating capacity (lower saloon)	22
,, ,, (upper saloon)	40
Total seating capacity	62
Total unladen weight	11 tons 1 cwt.

The body, which was built in the car works of the Department, is of the double-deck covered-top type, with vestibule ends top and bottom. The steel under-

Vestibule End of the Top Decks.

frame has duralumin side plates, to which are fixed duralumin pockets to take the body pillars, giving strength with lightness.

Tapered design from the bottom of the top deck to the roof gives a lighter appearance to the car. The width of the lower saloon is 6 ft. 2 in. against 5 ft. 11 in. on the standard Manchester car.

The frame work of the lower saloon is of teak, and of the upper saloon ash, with fliched pillars and roof sticks. The outside panels of the lower saloon are of baywood, of the upper saloon armoured plywood; the interior panels being also of plywood.

Digitized by Google

Transverse seats of both upper and lower saloons are of the reversible type, upholstered in leather cloth.

Permanent ventilation is provided in the lower saloon by means of metal louvres, which allow air to pass from the outside to the interior of the car by means of slots in the interior roof. Additional ventilation is provided by hinged metal-framed louvres over the top of the fixed windows. Permanent ventilation in the upper saloon is provided by veiled slots at both ends. In addition there are frameless half-drop windows, supplied by G. D. Peters & Co., and individually operated.

The floor level is continuous from the platform to the interior of the car, thus obviating a step up into the body. Side indicators of the roller blind type are built into the side louvres; and end indicators are operated by gearing from inside the car. Route number boxes with opal glasses and aluminium number plates are installed. All fittings, such as hand and staircase rails ventilator gear, etc., are chromium plated.

Waste ticket boxes are provided in the partitions at each end. Lighting is by means of 40-watt pearl lamps and shades, there being eight in the lower, and ten in the upper saloon. The upper saloon is electrically heated by tubular heaters placed down each side. Lifeguards of the Hudson and Bowring type, and Phillipson sideguards are in use.

The body is mounted on a Peckham Pendulum P.35 four-wheel truck, having a wheel-base of 8 ft. 6 in. The diameter of the wheels is 27 in. Two M.V.105 motors, each of 50 H.P., supplied by Metropolitan Vickers, Ltd., are used, and British Thomson-Houston B510 controllers.

It has been found that the riding of this car is very smooth and free from sidesway, and that acceleration and high speed running are very satisfactory. A magnetic track brake is fitted for coasting purposes on hilly routes, but the hand brake is used for service purposes.

The type of hand brake is known as the "Tong" and is a radical departure from standard practice. Steel discs are carried on the car axles, against the faces of which are pressed compressed fabric pads on the application of the hand brake, which itself is operated through Peacock gear. Extended experience of this brake on a bogie car seating 76 passengers has proved very successful, and it has been decided to adopt it on the 40 new cars of the type described which are to be built, work on twelve of which is now well in hand. The "Tong" brake is supplied by the Peckham Truck & Engineering Co., Ltd. Among its advantages is the fact that adjustments are required only at infrequent intervals, and that it is smooth quiet, and effective in use.

The New-Light Weight Manchester Corporation Car.

Automatic sanding by means of the Cummins sander comes into operation when the magnetic brake is used for emergency purposes. Foot sanding on both rails is adopted, the type of sand valve used on these and all other cars being the Taylor, in which the lifting of one tube uncovers the opening of a second one, thus allowing a continuous flow of sand.

The Department is to be heartily congratulated upon this display of enterprise. Whilst many of the improvements mentioned are now in general use, the method of body construction in particular is novel. Although the weight of the complete car is very low, yet appearance and detail finish have not been sacrificed to attain that end.

Digitized by Google

THE
Tramway and Railway World
FOUNDED IN 1892.
Offices:
AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2
Telephone: TEMPLE BAR 2948
Telegrams: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD *can be obtained at the following rates:*

FOR THE UNITED KINGDOM—Twenty-five Shillings per annum.
FOR ALL PLACES ABROAD—Twenty-five Shillings per annum. Postage to Canada 6s.; to other places abroad, 9s. 6d.

Single Copies—One Shilling (Postage, 2 pence—abroad, 5 pence).
All back numbers—Two Shillings.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS.

The Editor will consider contributions offered for publication in THE TRAMWAY AND RAILWAY WORLD (including the Omnibus and Coach Section) by those conversant with the subjects that come within the scope of this journal. All information of a practical character relating particularly to the engineering and operating branches of transportation will receive prompt attention. Original illustrations will also be welcome.

LONDON, JUNE 19, 1930.

For Home and Empire.

A large number of municipal authorities throughout the country now own and control industrial enterprises of importance and magnitude—in the shape of tramways, gas works, electricity works, and other public services, and there is, necessarily, in connection with those undertakings a demand from time to time for the materials and plant renewals requisite for their various activities. As may well be imagined, these items of replenishment are usually obtained from Home-land producers, but occasionally it is reported that orders have gone abroad—the excuse put forward being that the price of the Homeland article was higher than that of the foreign substitute. It is easy to realise that very careful consideration is needed before procedure, so detrimental to our own manufacturers and producers and their work-people, can be justified. It ought surely to be remembered by all authorities that control public utility and other services that unemployment prevails to an unprecedented extent in this country, and it ought to be the aim and duty of everyone to do all that is possible to lessen that unemployment by not allowing work that can be done in this country to pass outside. If we give a thought for a moment to the items that are usually required by tramway undertakings, gas and electricity works, and other municipally-owned industrials, it is not difficult to realise that Labour is the predominant factor in the cost of production. Whatever the item may be—whether tramway rails, dynamos, gas-pipes, kerb-stones, roofing-tiles, or any other requisite—it will usually be found on consideration that the intrinsic value of the actual material required for the manufacture is relatively small compared with the cost of the labour that has been expended in producing, handling, and transporting the finished article. It is not too much to state that, in respect to many lines of manufacture, labour represents 75 per cent. of the cost; so that, in sending abroad an order for goods costing, say, £1,000, there is something like £750 worth of labour sent abroad. An order given to a foreign firm for goods which we can produce in this country means that we get the foreign-made articles, whilst the foreign workmen get the employment and the money. In practice, taking the above-mentioned order as an illustration, what it amounts to is that, for the sake of a small difference between the foreign quotation and the Homeland figure, we deprive our workpeople of £750 worth of employment. This is plainly a harmful procedure, and it is the more to be deplored when one remembers that here in the Home-land our manufacturers and producers are much more heavily taxed and rated than their foreign competitors. Moreover they are called upon to provide for their workpeople welfare conditions in connection with insurance, social service, and factory equipment, very different from those prevailing abroad—the expenditure on which items would doubtless more than account for the difference in their quotation. If we assume, by way of illustration, that the Home-land quotation is 10 per cent. higher than that of the foreign competitor, that 10 per cent. is represented in the example given above by £100, so that if the £1,000 order specified went to a foreign manufacturer, we should be sending £750 worth of work abroad in order to keep £100 here at home. In such circumstances it is perfectly clear that the sending abroad of an order in the present conditions of unemployment in this country is unjustifiable. Consideration ought also to be given to the fact that if a worker in this Homeland of ours is thrown out of employment he comes either on the

Digitized by Google

" dole " or on the rates of his district, and in any case he is an expense to his country. By retaining work and not sending it abroad, our workpeople have some prospect of employment, and if they are successful in obtaining work they become earners and cease to be a burden to their fellow-countrymen. The firmest stand ought therefore to be made to enable our workpeople to hold their jobs, and thus be self-supporting. It requires no special acquaintance with economics to realise that when a country such as ours has a certain number of " unemployed " who have to be supported by the rest of the community, any increase in the number of " unemployed " aggravates the difficulty of the position, for every such increase means that the " rest of the community " is a diminishing quantity, so that, as the number of " unemployed " increases, there are fewer people in a position to bear this extra burden. Thanks to our wonderful " free import " system—which has masqueraded under the name of " free trade " in this country for the past two or three generations—we have allowed foreign goods, produced under conditions of labour, rates, taxes, rents, and overhead charges quite different from our own, to undermine and gradually to destroy many of our Homeland industries, and we are now suffering for having adhered to that misnamed and one-sided trading policy—which gives the work and the money to the foreigner and the curse of unemployment to our workpeople.

Conversion to Trolleybus Traction.

The Hastings Congress of the Tramways, Light Railways and Transport Association was notable, among other reasons, for the fact that it was the first occasion upon which members had the opportunity of discussing the actual work of substituting a trolleybus system for a tramway. The installation has been inspected by many delegations from this country and from abroad, and it is safe to say that the very full explanation which Mr. W. Vincent Edwards, the engineer and general manager, has given them must have rendered such visits most useful. Certainly the members of the Association should profit by the paper which Mr. Edwards submitted to the Congress, extended as it subsequently was by his special observations and lucid replies to points raised during the discussion. Some of the visitors were further indebted to Mr. Edwards for conducting them on a tour of inspection and giving ocular demonstration on features of special interest. The considerations which influenced the Hastings Company to change the system of traction are applicable to other company and municipal tramway undertakings besides those which are promoting Bills for that purpose in the present session. First there was the necessity to replace worn-out car equipments and to meet the increasing competition of petrol omnibuses. Next there was the certainty that within a few years heavy permanent-way renewals and road costs would have to be incurred. The local authority, too, were pressing for a more modern system. In these circumstances the company decided that it would be advantageous to install the trolleybus system, which would enable them to utilise the tramway power-house and sub-stations and much of the transmission equipment, both overhead and underground. Members of the Congress had tangible evidence of the wisdom of the company's action from the operative points of view. Congestion in narrow streets has been greatly lessened, and the average speed in the more open parts has risen by nearly one hundred per cent. The cost of working is 10d. per car mile with rail-borne coal.

The Future Tramcar.

It was easy to visualise the general appearance and the main equipment of the tramcar of the future from the admirable paper presented to the Hastings Congress by Messrs. J. L. Burton and H. H. Andrews. As regards external design, brakes and seating, the London company experimental cars have accomplished a great deal towards the desired ends. Various municipal undertakings, too, have progressed in a praiseworthy manner, however much they may have lagged in the past, especially those that have plant for body building. There is, however, one direction in which this country is behind foreign practice. It is that of automatic control and acceleration, which in their relation to American tramways were dealt with in an article published in the January 16 issue of this journal. Experiments are now being tried here, Messrs. Burton and Andrews state, with new types of control,

Digitized by Google

notably the remote-operated controller, in order to make the motorman's work as easy as possible and to economise in the space occupied by the driver and controller. Between them the driver and controller occupy, as the authors pointed out, considerable space and impose from four to five cwt. at a point where it is least desirable to have unnecessary weight. We cannot recapitulate here the various other directions in which the authors have provided food for reflection, but mention may be made of one prediction. The future car, they say, will have entrances at each end and also in the centre, " so as to provide one-way traffic through the car itself." Even though it may be possible to enlarge the lower saloon by extending it into the vestibuled platforms, the contention may be advanced that it is not possible to hope for the increase in frame and body length that would be necessary for the construction of a car with a centre entrance The rear entrance and front exit car is, however, quite possible, as has been proved in several instances, notably Newcastle-on-Tyne, where the system has reduced the number of platform accidents. If the rear entrance and front exit became general there is reason to hope for a reduction of running-down cases. The road hog might think twice before forcing his way if he knows that there is a stream of passengers at each end of a car.

A Glasgow Monopoly.

The Corporation of Glasgow may be congratulated on their success in getting their Bill passed by a Parliamentary Committee. The proposals now contained in it have still to stand the ordeal of the Second House, but it seems probable that it will emerge triumphantly. The principle which it lays down is that the Corporation should have practically a monopoly of street passenger transport along tramway routes inside the city. In essence, though sometimes obtained in different ways, this is the system which exists in many of the large towns in England. In the past the Glasgow municipality found themselves practically powerless against ever-growing omnibus competition. The law of Scotland, and in particular the powers contained in Glasgow private Acts of Parliament, proved ineffective to prevent ruinous competition by omnibus companies. Then by a private Act passed last year, Glasgow magistrates were given powers of omnibus licensing and regulation such as they never had before. In pursuance of those powers the magistrates a few weeks ago issued regulations in connection with company-owned omnibuses of a specially drastic character. At the same time the Corporation pressed forward with their new Parliamentary Bill so as apparently to make assurance doubly sure. It may be taken that the monopoly will not prevent omnibuses from the country coming into Glasgow and leaving it with their long-distance passengers. What is aimed at is to prevent passengers being both taken up and set down within the municipal boundary, so that the municipal tramcars and omnibuses may have the monopoly of purely local traffic within the city. The Corporation were well advised when at the beginning of the Parliamentary proceedings, they announced that they would drop that part of the Bill which sought to give them a monopoly on their tramway routes outside the city. The putting foward of such a proposal at all can only be ascribed to the audacity characteristic of a section of the Corporation There was evidently no chance of the proposal being sanctioned by Parliament, the more especially as the tramway routes outside the city extend to many miles. If the Corporation get their Bill finally through in its present form they may be well content.

THE ENGLISH ELECTRIC CO., LTD.

International Arrangements.

The English Electric Company has entered into an arrangement with the Westinghouse Electric International Company (New York) and the Westinghouse Electric and Manufacturing Company, of East Pittsburg, U.S.A., whereby there will be an exchange of technical information on steam turbines and electrical apparatus. The arrangement includes the granting of licences for the use of patents and for the manufacture and sale of various products. Under this arrangement the English Electric Co. will have the benefit of the results of the extensive research carried on by the Westinghouse Electric and Manufacturing Co., but the technical and manufacturing link thus established does not carry with it any control from America. Believing that a moderate financial interest on the part of the American Westinghouse Companies would be highly desirable, the English Electric Co. has offered a participation in the ordinary shares at par, but this participation will be under 10 per cent. of the total.

Digitized by Google

TRAMWAYS, LIGHT RAILWAYS AND TRANSPORT ASSOCIATION

Full Report of the Annual Conference held at Hastings on June, 11, 12 and 13, 1930

The Twentieth Annual Congress of the Tramways, Light Railways and Transport Association, held at Hastings from June 11 to 13, was of special interest for two reasons. Firstly, it was the first congress since the Association enlarged its name, and thereby widened its sphere of influence. Secondly, the meeting took place for the first time in a town where there were neither tramways nor light railways, but in which a modern trolleybus system was in full and successful operation. From all points of view the congress was an undoubted success, and the fact that the attendance, including ladies and guests, numbered 270, is evidence that the Association is strengthening its hold on the industry. Favoured with delightful weather the historic town of Hastings made a strong appeal to the visitors.

The headquarters was at the Queens Hotel, and here, on the Wednesday evening, in the handsome ball-room, the Chairman of the Council of the Association, Mr. E. H. Edwardes, and Mrs. Edwardes received the members and their friends.

On the Thursday morning the Mayor of Hastings, Councillor F. M. Russell-Davies, K.C., gave the members of the Congress an official welcome in the lounge of the Queens Hotel, where he was received by the Chairman of the Council and Sir Joseph Nall, D.S.O., T.D., a member of the Council. After thanks had been returned to the Mayor for his warm welcome, the members of the Association proceeded to the Congress hall where the thirty-third Annual General Meeting was held. Mr. E. H. Edwardes presided, supported by the members of the Council, and the proceedings, a full report of which, together with the papers and the discussions, appears on the following pages, were of much interest.

Moving the adoption of the report and accounts, Mr. Edwardes alluded to the financial position of the Association, and said the membership was being well maintained. Sir Joseph Nall seconded the motion, which was carried unanimously.

The business of the annual meeting having been completed, the chairman then called upon Mr. W. Vincent Edwards, manager of the Hastings Tramways Company, to read his paper entitled "Notes on Substituting a Trolley Omnibus System for a Tramway." As was intended, this provoked considerable discussion and many questions were asked. It was fully recognised that the practical experience Mr. Edwards had gained in changing over from trams to trolleybuses in Hastings had made him an expert on the subject and enabled him to give invaluable advice.

At the invitation of the Mayor and Corporation of Hastings, the Association was then entertained to luncheon at the Queens Hotel. In proposing the toast of "The Tramways, Light Railways and Transport Association" the Mayor in an exceptionally happy speech gave further evidence of the pleasure he and the members of the Corporation felt in having the representatives of the Hastings Tramways Company as well as the members of the Association with them on the occasion of this Congress. The toast was responded to by Col. Sir Joseph Nall on behalf of the Association and by Mr. A. R. Hoare, a director of the Hastings Tramways Company. Immediately after the official photograph had been taken, a number of omnibuses conveyed the party to Falaise Road, where an inspection of the motor vehicles had been arranged to take place. These included double and single-deck service omnibuses, motor coaches, and the latest type of trolleybuses which attracted the closest attention. Afterwards some of the party enjoyed a trip to Winchelsea and Rye, while Mr. Edwards acted as guide and instructor to a number of the delegates during a tour of inspection of the Hastings trolleybus installation and the depot at Silverhill.

On Friday morning, after Mr. Edwards had replied to the discussion on his paper, the chairman called upon Mr. J. L. Burton, manager of the Road Transport Department of the English Electric Company, to read his paper, "The Tramcar, Present and Future," of which he and Mr. H. H. Andrews of the same company were the joint authors. From this paper and the discussion which followed, it was evident that wherever there was a sufficient density of traffic the modern tramway was still the most economical means of transporting large numbers of passengers, and in the opinion of many could compare favourably with regard to speed and comfort with any other vehicle on the road. At the conclusion of the discussion on this paper the company was entertained to luncheon at the White Rock Pavilion at the invitation of the chairman, directors and manager of the Hastings Tramways Company, Dr. Gerald T. Moody presiding. In proposing "Our Guests," the Chairman referred to the happy relations which existed between his company and the corporation at that moment and to the pleasure he felt in presiding over such an important gathering of traction experts. He called upon the Mayor of Hastings and Sir John Timpson, K.B.E., chairman of Portsmouth Tramways Committee, to reply, which they did in a way that will long be remembered by all those privileged to hear them. During the afternoon a well-organised excursion to Hellingly, where tea was served, gave the company an excellent opportunity to test the running qualities of the demonstration omnibuses.

The annual dinner of the Association, at which the president, Sir Arthur Stanley presided, was held at the Queens Hotel on Friday evening; this was followed by a dance, which, in spite of the hot weather, was well attended.

Throughout the Congress the arrangements which had been made for the pleasure and comfort of the company worked thoroughly well and the members of the Council, together with the secretary of the Association, Mr. A. de Turckheim, are to be congratulated upon yet another successful Congress.

Digitized by Google

THE CONGRESS PROCEEDINGS.

The twentieth annual Congress and thirty-third annual general meeting of the Association was held in Hastings from June 11 to 13, 1930.

On Wednesday evening, June 11, there was an informal reception at the Queen's Hotel by Mr. E. H. Edwardes (Chairman of the Council).

On Thursday morning (June 12), the Mayor of Hastings (Mr. Russell-Davies, K.C.), gave the Association a cordial civic welcome on behalf of the Hastings Corporation. Col. Sir Joseph Nall, D.S.O., T.D., a member of the Council, thanked the Mayor for his cordial reception of the members of the Association. The Annual General Meeting was then held.

ANNUAL GENERAL MEETING.

THE SECRETARY, MR. A. DE TURCKHEIM, having read the notice convening the meeting, the CHAIRMAN delivered his address which was as follows :—

This is the first occasion upon which I have had the honour of addressing you as Chairman of your Council. My predecessor, Mr. Spencer, who for three years so ably directed your affairs is, I am sorry to say, unable to be with us this year, but we are to have the pleasure of having our President, the Hon. Sir Arthur Stanley, with us to-morrow when he will preside at our annual dinner.

This is the first congress and the first annual general meeting to be held under our new name and I am glad to see that the attendance is fully up to the best traditions of our past. We have held nineteen congresses to date, this being our twentieth, and the thirty-third annual general meeting of the Association. We are really getting to be quite an old Association—by far the oldest road transport Association.

It is never an easy matter to decide upon the place to hold our summer meetings, but you will all remember the boundless hospitality of our hosts the Corporation and our manufacturing members on the last occasion at Sheffield, I am glad to welcome Alderman Bolton, the late Lord Mayor of Sheffield, who is with us to-day and hope that he will enjoy himself at Hastings as much as we enjoyed ourselves at Sheffield.

One of the reasons which led us to select Hastings was the fact that here you will have an opportunity of examining a complete and up-to-date system of trolley vehicles under the very able management of my old friend Mr. W. Vincent Edwards. Trolley vehicles are very much to the fore just now ; some 14 Bills seeking trolley omnibus powers have already got through one or both Houses of Parliament this session and it is appropriate that you should all have the chance of observing a modern installation about which Mr. Edwards will have something to say this morning.

My first duty is to move the adoption of your Council's Report and the Statement of Accounts of the Association for the year ended December 31, 1929. The published accounts appeared in our Journal for February and they are of a simple nature. The total revenue amounted to £805 14s. 9d., as against £842 13s. 10d. in 1928. The total expenditure amounted to £892 1s., as against £882 1s. 10d., showing a small balance on the right side of £3 13s. 9d., against a deficit of £39 8s. in the previous year. Our net surplus over previous years now stands at £694 11s., which is invested in war bonds, and our total investments amount to £749 14s. 5d. Our financial position is, therefore, sound and no further call on members was necessary.

Since the Council's last report the Association has, with the consent of the Board of Trade and the sanction of its members, changed its name to "The Tramways, Light Railways and Transport Association." The name may appear rather long to some of you, but it was desired, especially by the Government Department, that we should keep the term "Light Railways" in somewhere because we are known in the Government Departments as the "Light Railways Association," and I expect we shall always be known by that name. The reason for this change is obvious as, although under our original Articles of Association our objects are "to promote, encourage, and facilitate the construction, extension and working of tramways and light railways, and the development of electric and other modes of mechanical traction," our old name rather indicated that our interests were limited to electric tramways and light railway systems. We are passing through a period of transition in traffic matters and it became obvious to your Council that unless we broadened the basis of our Association we should soon begin to shrink. Some of our old tramway companies have been forced, owing to the onerous, and I think unfair, burdens placed upon them by way of road maintenance, to pull up their tramway tracks and have gone in for motor omnibuses. We are out to help any members whether they operate tramways, trolley vehicles, motor omnibuses, or all three.

Matters affecting the position of these various undertakings are at present occupying the consideration of a Standing Committee of Parliament and your Council are devoting their closest attention to the Road Traffic Bill in order to safeguard the position of their members. You will remember that your late Chairman, Mr. Spencer, gave very able and detailed evidence for the Association before the Royal Commission on Transport, whose recommendations form the basis of the present Bill. The Bill was first introduced in the House of Lords and our grateful thanks are due to Lord Askwith, who devoted so much of his valuable time in taking charge of the Association's amendments to the Bill with such excellent results. The Bill is still under consideration and we all hope that when it finally becomes an Act of Parliament the situation will be cleared and that we may find in the Traffic Commissioners, who will be appointed under the Act, a fair and sympathetic body before whom we shall be able to lay our case, should the occasion arise, and ask for help. Several of our amendments have been adopted (I think nearly all of them) but, unfortunately, the Minister of Transport has added a new Clause at the last moment—Clause 90—which rather cuts the ground from under our feet in the way of protection. That Clause, however, is to have reconsideration, but whether we shall be successful in the House of Lords we do not know.

At the time of the extraordinary general meeting, convened to alter the name of the Association, we took occasion to alter the Articles of Association with regard to the amount of subscription. In the year 1926 we took powers to make an extra call on tramway companies for an amount not to exceed 5s. per car in any one year, should it prove necessary. These powers have never been exercised up to date, but it might be necessary in the future. As, however, tramcars are going out to some extent it appeared to the Council that if we made a call there would be less coming in and, therefore, we have changed the Article so that instead of making a call of 5s. per tramcar we shall be able to make an additional call on every member, being a company, to pay by way of further subscription a sum not exceeding ten guineas in any one year. I think you will admit that this is not a very onerous burden, and at all events you will have to be consulted before it can be put into force. This resolution has already been passed at an extraordinary general meeting held on February 18 last. Let me here say how I think we should thank our Secretary for the extraordinary way in which he gets along on so little money. I think this must be the cheapest Association in existence.

Your Council also have joint sub-committees with the Municipal Tramways and Transport Association which are considering the question of electrolysis, the new Ministry of Transport regulations as to earthing guard wires, and the interruption caused to broadcasting in tramway areas. The latter is owing to complaints which have been received by several members from the Postmaster-General and it is considered advisable that if any members receive similar complaints they should refer them to the Association so that they can be dealt with as a whole.

Well, gentlemen, as we have a busy day before us I do not propose unduly to detain you. I therefore propose :—

"That the Council's Report and Accounts for the year ended December 31, 1929, be approved."

If anyone would like to ask any questions I shall be glad if they will do so now.

COLONEL SIR JOSEPH NALL seconded the motion for the adoption of the Report. There was no discussion, and the motion was carried unanimously.

The following members, nominated by the Council, were unanimously elected to fill vacancies on the Council :—

Mr. R. S. Asher, General Manager of the York Corporation Tramways and Motors.

Mr. W. McGibbon, General Manager of the Mexborough and Swinton Tramways Company.

Mr. C. R. Tattam, Messrs. Balfour, Beatty & Co., Ltd.

Mr. J. A. Forde, General Manager of the Isle of Thanet Electric Supply Co., Ltd.

Mr. W. E. Ireland, O.B.E., London County Council Tramways.

This leaves one vacancy to be filled at the option of the Council.

On the motion of the Chairman the sincere thanks of the members were accorded to the retiring members for their assistance and co-operation during the past three years, the Chairman at the same time expressing the hope that these gentlemen would be back on the Council again in the future.

The retiring members were Sir Joseph Nall and Messrs. Chivers, Harvey, Richardson, Soames and Thomas.

The CHAIRMAN offered the congratulations of the Association to Mr. Thomas on his important appointment with the L.C.C.

Messrs. Wright, Wake, Price & Co., the retiring auditors, were re-appointed auditors for the ensuing year at a fee of ten guineas.

This closed the business of the Annual General Meeting.

The Chairman then asked Mr. Edwards to introduce his paper entitled "Notes on Substituting a Trolleybus System for a Tramway." (The paper follows.).

Digitized by Google

NOTES ON SUBSTITUTING A TROLLEYBUS SYSTEM FOR A TRAMWAY

By W. VINCENT EDWARDS, A.M.I.E.E.

Engineer and General Manager, Hastings Tramways Company.

In view of the widespread interest which is being taken at the present time in the adoption and operation of trolley omnibuses, it is thought that possibly some account will be useful of the change-over of the Hastings Tramways, and the manner in which special conditions incidental to this town were met, or where departures from orthodox practice were executed. If details of failures as well as of success are given, it may possibly save the time of other engineers, or give a hint which might be turned to better account than we have been able to do here in Hastings.

The route length as it at present exists is 21·34 miles. It will be seen from Fig. 1 that, generally speaking, the district served by the tramways was by no means an ideal one for conversion to trolley omnibus working. The isolated patches of populous area and the hilly nature of the eastern portion of the Borough of Hastings necessitated a somewhat straggling lay-out, following by circuitous routes the several valleys which divide the hills on which the town is built; added to which, an unusually large number of junctions tended to increase the cost of equipment and to reduce schedule running speeds. Fortunately these adverse conditions were somewhat minimised by the existence of a power-house at Ore, and sub-stations at Silverhill and Bulverhythe, giving three supply points, and permitting the virtual cutting-up of the system into a corresponding number of tolerably compact sections. It was therefore possible to effect the change-over without incurring very heavy expense in providing large negative feeders.

Lines running directly east and west are free from severe gradients it being only those which take a northward and inland direction where grades as steep as 1 in 9 are encountered.

The steeper the gradient, the better does a trolley omnibus compare with its petrol competitor, not only as regards the comfort of the passengers, but, what is more, it is viewed with favour by frontagers who live on the route. Rapid acceleration, higher running speed, absence of fumes, and, more particularly, ability to ascend a hill without engaging bottom gear, as in the case of the petrol omnibus, resulting in freedom from noise; these are all factors which win high appreciation from those most intimately concerned with traffic conditions to-day.

The principal reasons which have hitherto led to the conversion of tramways to trolley omnibuses have been the necessity to deal with a worn out permanent way, and the impossibility of meeting, commercially, the high post-war cost entailed in re-laying it, coupled with the necessity for providing a road surface capable of standing up to present-day (vehicular) traffic conditions. There are, however, other factors which may have an equal bearing in deciding what method to adopt, where the retention, or otherwise, of an existing tramway is under consideration. The following are some of these:—

(*a*) Quite a number of smaller towns are really unsuitable for tramways, and had it not been for the boom of about 25 years ago they would never have had trams at all.

(*b*) The loss of the tramway load where the power supply is provided by the operating authority would have an appreciable effect upon the economic running of the station.

(*c*) The character and intensity of petrol omnibus competition.

(*d*) The question of street congestion and the possibility of securing material improvement by the use of a more mobile vehicle, and the abolition of single tramway lines, with passing-places, etc.

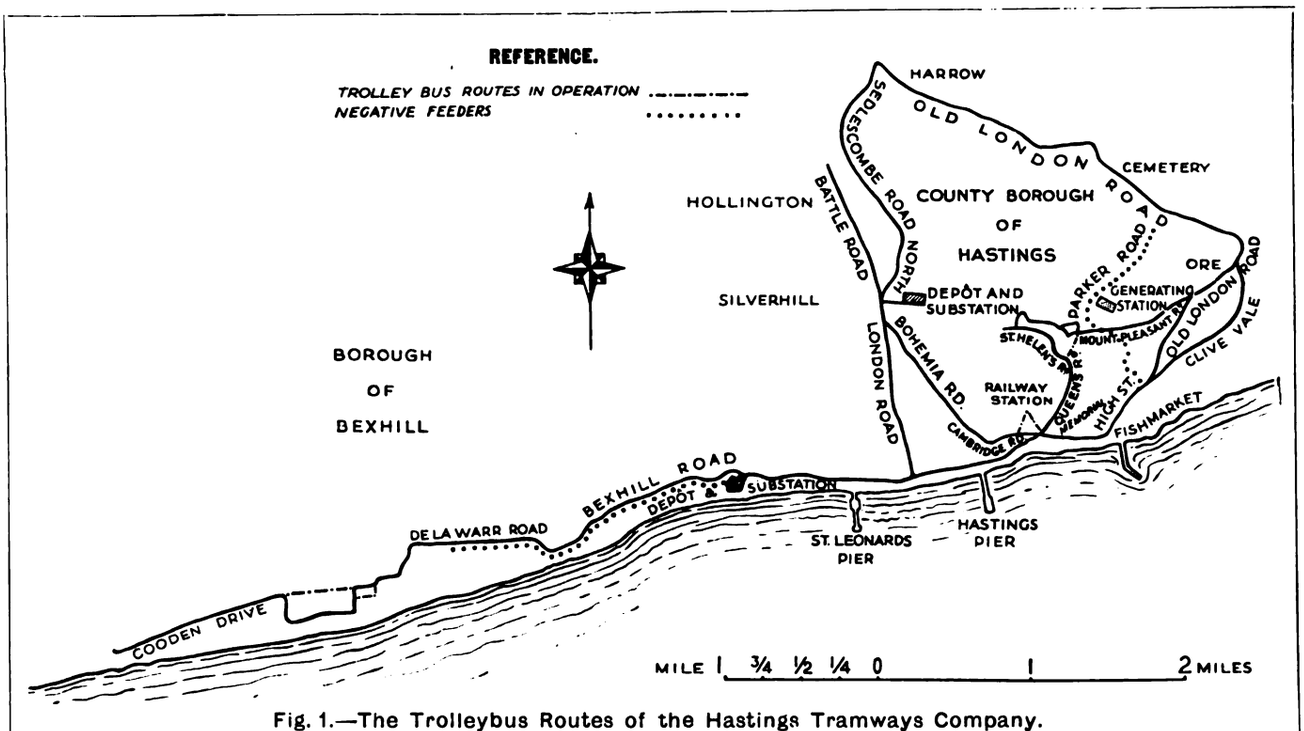


Fig. 1.—The Trolleybus Routes of the Hastings Tramways Company.

In the case of Hastings it was not a question of dealing with a worn-out permanent way. Miles of the rails were good for many more years' service. Some of those which have been removed have, in fact, been bought and re-laid by an existing tramway undertaking, but the great part has been sold for scrap—joists, pit props, etc.

Some of the principal considerations which led us to change over were the necessity to replace worn-out car equipments and to meet increasing competition of petrol-driven vehicles; the certainty that within a few years heavy permanent way renewals and road costs would have to be incurred, and representations from the local authorities to provide some more modern system to replace the tramways. In view of these facts it was decided that it would be

Digitized by Google

cheaper to install a more suitable system of transport to meet present-day conditions, whereby we could at the same time still be able to utilise the power-house and sub-stations, and much of the transmission equipment, both overhead and underground, which had been provided for the trams.

It will be recognised that the above conditions apply to a greater or less extent to many of the smaller corporations in this country who own and operate electric supply stations. The loss of a tramway load will undoubtedly be felt, and must certainly put off the day when any reduction in price to lighting consumers can be given, even if it does not actually entail an increase in price for a period. These conditions explain why many companies, who had to purchase current from the local authorities, have given up the operation of their trams and changed over to petrol, instead of to trolley omnibuses. But even as I write, conditions are changing, and the views I am now expressing are less correct to-day than they were, say, six months ago. The large corporations are taking a greater interest in trolley omnibuses, and recognise the advantages of extending the area hitherto served by trams by utilising trolley omnibuses. The lower operating and maintenance costs, the absence of all reciprocating parts, including " big-ends," gear boxes, and other apparatus peculiar to a motor omnibus, and especially the use of British coal instead of foreign fuel, are all valuable points which will receive even greater attention and consideration as time goes on.

Most tramway engineers are rightly satisfied with their linesmen, and feel them to be quite competent to put up a couple of negative wires alongside the existing positive ones. The conversion of a whole system is not such a simple matter as that. However good a linesman may be, unless he has had actual experience of trolley omnibus operation, it will save time, annoyance and especially expense to call in outside assistance to supervise the conversion of the first route and to instruct the local staff. It takes many months for a tramway linesman to drop his ingrained habit of insisting that a trolley-wire must be over the centre of the road, and to realise that a trolley omnibus, travelling at a much higher rate of speed than a tram, must, when on any curve, not only follow the general flow of ordinary road traffic, but have the wires so arranged that they are erected on an arc having a shorter radius than that of the line of travel of the omnibus.

The tendency is very great to make a show and to put up negative wires alongside existing tramway ones, and only to move the latter a couple of feet, when five, six or eight feet is actually required, but it all means additional expense in the immediate future and mediocre service in the present. No negative wire at all should be erected until the positive wire is in correct position for trolley omnibus working. This naturally means that in many instances the trams must be kept running on their old wires with temporary switches, etc., and the omnibuses provided with entirely new ones where road widths or junctions call for special steps. The great thing to realise is that switches, crossings and line work in general, which may be quite suitable for tramway speed, are not sufficient for a trolley omnibus with its 20 ft. poles, its capacity for higher speed, and its ability to deviate from the normal line of running. Therefore, in laying out curves, turning circles and junctions, etc., the overhead equipment should be put up in such a way as to enable the omnibus to travel on the arc of a larger circle than that of the trolley heads ; on a tramway route containing sinuous curves, which, owing to road widths, does not call for the erection of separate positive wires, the first thing to be done is to move the existing tramway wire of the inner track nearer the kerb—if necessary by cutting pieces out of it.

Overhead Line.

The scrapping of tramway rails raises the question of providing adequate copper for the return circuit. I considered to what extent this requirement could be met by a departure from the usual practice of employing a light-gauge trolley wire, by putting up a heavier trolley wire. Obviously this would throw a greater load on the poles, bracket arms, etc., and the labour costs of the overhead line would be somewhat higher, but a bare copper wire is the cheapest form in which a conductor can be purchased. It also gives a larger contact area for the trolley wheels. I am aware that many overhead line engineers hold the opinion that the longest economic life is given by 3/0 trolley wire, but I believe this is based on experience, generally with plain hard-drawn wire, in which, of course, only the skin is hard, and when this has worn through the central portion rapidly wears away. In the States most of the trolley wire is 4/0 B. & S., which is precisely the same diameter as 6/0 S.W.G. I therefore proceeded on the lines that by using cadmium copper wire of 6/0 S.W.G. I should have an alloy which would be nearly equal in conductivity to pure copper, but of longer lasting qualities, and that the rate of wear would be independent of any skin effect. It would also give a high contact area for the trolley wheels, and the pair of wires would be equal to ·3 square inch.

It should be mentioned in passing that in almost every instance we retained the tramway wires as positive, and erected new negatives, one on either side of them. This was necessary to obtain the benefit of the new 6/0 wires on the negative side of the circuit.

Poles.

A safe and rapid method of erecting ordinary steel poles is shown in Figs. 2, 3 and 4. The 3-ton lorry employed to deliver poles and materials for concrete is used. A special cradle-like framework,

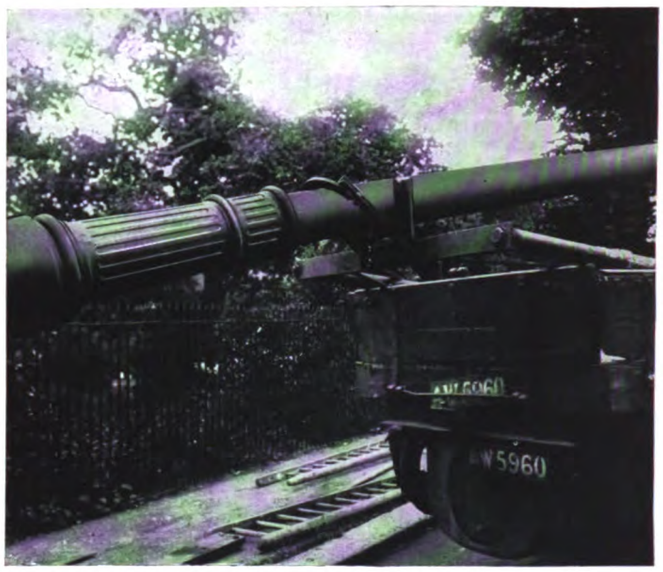


Fig. 2.—Erection of Steel Poles.

holding the pole loosely, is fixed temporarily to the lorry floor by two bolts at the forward end. This cradle is constructed of old boiler tubes, channel and angle iron, etc. The rear end of the cradle merely rests on the tail board of the lorry. On backing the lorry the pole is raised vertically within a few seconds. This method is far quicker and safer than the old one of employing men with forks and ladders, etc., and also shows considerable advantage over employing a heavy tower-waggon with a winch, etc., for raising the pole.

Many tramway authorities find that in dropping the practice of

Fig. 3.—Steel Poles being pushed up by a lorry.

fitting ornamental cast-iron bases, protection of poles against corrosion at the ground line is imperative. A simple type of concrete base cast *in situ* round the pole, by means of split hexagonal wooden formers, affords ample protection, and gives a finish to an otherwise bare pole. This concrete base can, if necessary, be continued down below the paving level to join up with the concrete foundation.

A tramway rail set in position and then encased in concrete makes an excellent pole. Our old rails measure 6 in. by 6 in., and if a portion of the flanges is tapered off for 3 ft. or 4 ft. at the top, a pole is produced hardly bigger than a standard heavy-section one.

Digitized by Google

Poles made in this way, inclusive of a substantial panelled base, can, if the rail is taken at scrap value, be erected complete for £6 each. We have had a few of these in use for two or three years. Some of them have been left bare, with simply a wash of neat cement; others have had various sorts of paint applied. Even some early poles which we built with steel rods, instead of tramway rails, and which, owing to insufficient reinforcement, gave excessive deflection under load, show no sign of rusting, though there are surface cracks in the concrete on the tension side of the pole.

Poles made of rails are stiff. They cannot be tested as steel ones are—horizontally—but we found that if a rail was set in its concrete foundation with the usual amount of rake, but before any of the casing concrete was applied, it would stand a tension of 2,000 lbs. applied 21 ft. from ground level, with a temporary deflection of 11 in., no permanent set occurring. The ornamental concrete base and casing greatly stiffens the pole, especially as the concrete is kept, as far as possible, on the compression side of the pole, so that ultimately these poles are fully up to the test that a No. 3 standard pole will pass.

Fig. 4.—Erection of Steel Pole.

Reinforcing Old Poles.

Having decided to use a trolley wire which on straight track would give a load per span of 313 lbs., as against 232 lbs. for four wires each of 4/0 gauge, with, of course, the corresponding extra stress at curves and junctions, the reinforcement of the existing poles required special attention. The method adopted may be briefly described as follows:—

Steel rods having a tensile strength of 35/40 tons, in lengths of 30 ft. 6 in., were used, three to each pole. The diameter of the rods generally employed was ½ in., but where extra strength was required 1 in. rods were used. They were kept apart at the bottom by being shod with conical-ended wooden bobbins of such a diameter as could comfortably be contained within a circle equal to the bottom end of the pole. The conical ends of the bobbins ensured that each rod would automatically slip down into its proper place, and the circular central portion of the bobbin kept them at the proper distance apart. Fig. 5 shows plan and elevation of the pole bottom with two rods in position, and the third one just being lowered home.

The three rods were so located that two of them would be in the best position to take the tensile strain, the third being on the compression side of the pole. In order that the rods should carry as much load, and relieve the pole of as much tensile strain as possible, before any grout was put in, the pole was strained back in the reverse direction by means of one or more back stays, these being left in position for two or three weeks. By this means even light No. 1 poles were made to stand up very well to the much more severe conditions of loading. See Fig. No. 6.

These high tensile steel rods were bought at £9 10s. 0d. per ton delivered. It is not generally known that plain round rods are quite satisfactory. I understand a ½ in. rod, set for a length of at least 18 in., in good concrete, will break before it can be pulled out.

Quick-setting cement, clean sharp grit, in proportions of 1—3, were used. A gang of three men can reinforce at least three poles per day at a cost of about 25s. per pole.

It is desirable not to rely on the grout dropping solidly into a homogeneous mass, but to work out any trapped air or voids. This can be done by putting down the pole a set of ordinary drain canes, which can be used to tamp

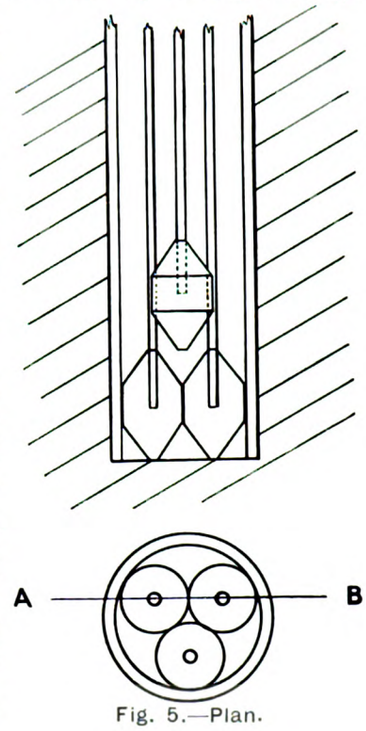


Fig. 5.—Plan.

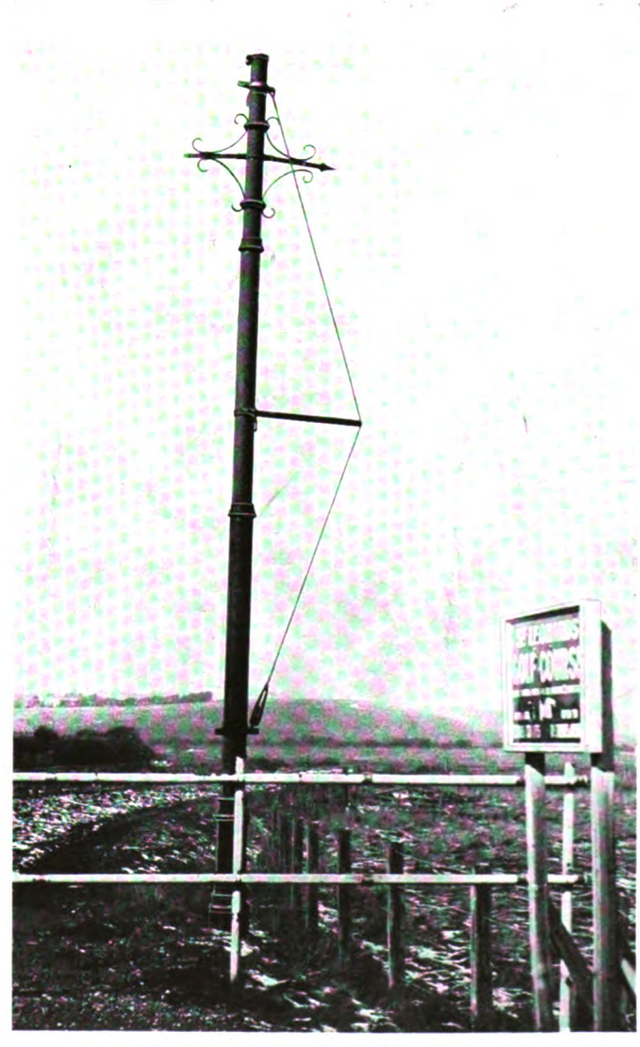


Fig. 6.—Reinforcing Poles.

Digitized by Google

the grout after each bucketful is poured in, lengths of the canes being unscrewed as the level rises.

Our tramway poles were mostly erected in 1905, the majority of them measuring 6 in., 7 in. and 8 in. diameter respectively at the top, middle and bottom. Tests of several such poles which have been reinforced give the following results :—

Each is reinforced with three ½ in. high tensile steel rods and rapid-setting cement and sharp aggregate as above.

The bracket arms are 16 ft. in length.

The reinforcement of these poles was done in March, 1928.

The under-mentioned weights were applied midway between the four existing trolley wires, the wires being 4/0 S.W.G. for the two positive ones, and 6/0 S.W.G. for the negative ones :—

Weight	*Temporary deflection of pole.*
112 lbs.	3/8 in.
224 lbs.	5/8 in.
340 lbs.	7/8 in.

No permanent set whatever was produced.

The poles on either side of the above are practically 40 yards distant on straight road.

Poles erected on the front line required special treatment as the conditions differed from the particulars given above. Originally this portion of the tramway was operated on the Dolter surface-contact system. This was superseded in 1914 by trams equipped with petrol-electric gear, and it was not until 1920 that poles to carry tramway wires and public lighting lamps were erected.

In order that the line work should look as light and unobtrusive as possible, nearly all the poles used were of the British Standard No. 1 taper dimensions, namely, 7½ in. at the base, and only 4¾ in. diameter at the top. Short bracket arms of 10 ft. were used, carrying the usual pair of 4/0 wires. It was found that a 3½ in. rake was sufficient to meet requirements, and a special gadget, something like a mason's plumb-bob, was used to ensure that each pole was accurately erected with the above rake. The question for solution now was if, and how, these poles could be strengthened to enable them to carry four wires each of 6/0 gauge, not on the existing bracket arms, but in many cases by span wires construction. By using two 1 in. reinforcing rods, keeping them as close as possible to the tension side of the pole, and particularly by straining back the pole to the utmost possible extent before the concrete was put in, a satisfactory job has been made. Two heavy turnbuckles were used, each with a separate straining wire, being tightened till the hooks showed signs of opening. The stress caused the top of these very light poles to bend back as much as 4 in.—5 in. In the case of the rods used for these poles, I thought it safer to upset the ends of them a little, so as to prevent any tendency to draw.

It may also be well to mention that at junctions, where wire guards are required, existing tramway poles may conveniently be increased in height while they are being reinforced by having the rods an extra 2 ft.—3 ft. in length, and a sheet-iron cylinder fitted as an extension of the pole, the grouting being carried up to the added height. The guard wires can then be erected at such a height that they will not be touched by a de-wired trolley.

Should this hint of increasing the height of the poles be adopted, it will be well to bear in mind that a tower-waggon of the usual design may be inadequate for ensuring that satisfactory work shall be carried out on the guard-wires. In purchasing new waggons, therefore, it will be well to provide for an extra 2 ft. in maximum height.

Return Circuit.

The tramway system was provided with 1 sq. in. of negative copper from the rail in Mount Pleasant to the power-house, and also .3 sq. in. from Parker Road. The latter cable is boosted to a maximum of 50 volts. The boost is automatically variable, due to the series field of the generator being in circuit with the positive feeder. The boost is also manually variable by means of a diverter resistance.

A new .5 cable has been laid from Mount Pleasant to High Street. This is a concentric one and, therefore, feeds both on the positive and negative sides of the system. It is required for the new trolley omnibus route running from the Memorial to Mount Road. Fig. 1 indicates the negative feeders.

There is also a .4 in. negative feeder running westward from the Bexhill Road sub-station towards Bexhill. This is boosted similarly to the above one, and to assist the negative return from Bexhill an overhead feeder has been erected as an extension. Fig. 7 shows this feeder close to the pole. It is 7/0 bare solid hard-drawn copper, and therefore looks very much like a trolley wire. The running wires on the bracket arm are two 4/0 positive ones in the centre, and two 6/0 negative wires in the outside position. These two latter, together with the 7/0 negative feeder, which is .2 in., gives a total section of .5 in. negative copper. I think it will be considered that the arrangement does not look unsightly; at any rate much less so than would the use of a stranded insulated cable supported from a carrier wire. A further advantage is cheapness. The cost of the 7/0 wire, inclusive of erection, insulators, and all fittings, etc., came out at the rate of only £208 per mile.

Switches and Crossings.

The use of 6/0 wire meant that we could not adopt the M.T.A. Standard fittings for line work. We therefore got out designs of our own. Generally speaking, it was only a question of slightly enlarging the fittings and strengthening the parts which take the wire. We think, however, that our crossings are an advance on the usual design.

It is highly desirable to avoid the use of specially-built line fittings, supplied by some manufacturers for particular positions. The legs of all switches and crossings should be similar, and of such pattern that they will take either the line wire or the insulating pieces, as may be required. By this means a minimum of spare parts is required to be carried in stock, and the fittings throughout the job are interchangeable. Also the breaks in the circuit can be altered from the positions first selected—for example, changed from the branch route to the main route if it is found desirable. With specially built gear such a change-over cannot easily be made, but would involve the making up of another set with the insulation in the other legs. It is, however, a simple matter if it only means transferring the insulation pieces from one of the legs to the other.

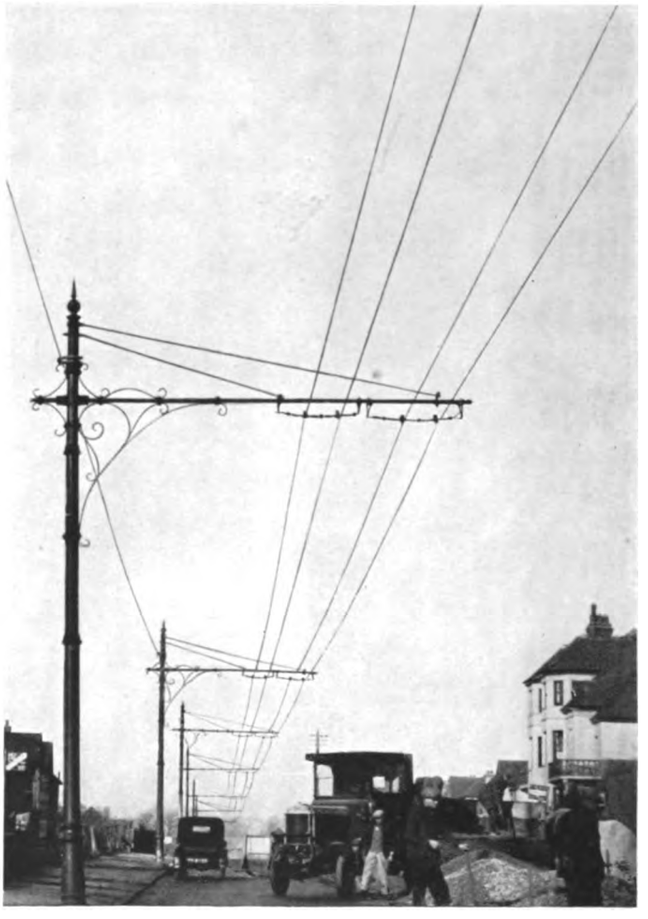


Fig. 7.—Trolley Wires with Auxiliary Negative Feeder

We have kept down to a minimum the number of types of switches and similar fittings, and throughout the system only four patterns of switches are employed, as follows :—

A 15° casting is made up as either automatic, or as a right hand or left-hand pull switch, depending only on the arrangement of the controlling spring, etc. Similarly with a 25° switch casting. Then there are the two Y-switch patterns, one each of 15° and 25° angles as above, or a total of four patterns for all switches.

Trailing frogs are dealt with in the same way, and a total of five patterns only meets all requirements, these being, of course, a 15° right-hand, a 15° left-hand, and two 25° ditto, and finally one 15° Y-pattern frog.

Crossings are mostly of the angle of 25°, though there are several of 35°, 45° and 80°, and we have one situation where a 65° fitting is called for, so that our total under this head is five patterns.

Digitized by Google

Trolley Heads.

No doubt most trolley omnibus operators know of a particular make of trolley-wheel which gives a remarkably long life. Unfortunately we found that an excessive amount of noise was made by them, particularly at high speeds. This was probably due to the combination of a hard wheel and a hard wire. We therefore had to discontinue using them.

On experimenting with wheels having hard, non-spreading flanges, but soft centres, much better results were obtained. They were, however, liable to develop flats and other undesirable features. The solution appeared to be a wheel running on ball bearings, having a rather soft centre, with hard flanges and hub.

Considering that at times 250 amperes are passed through the heads, it seemed only a waste of time to experiment with a ball-bearing wheel. However, it was ultimately found that by using a high conductivity carbon brush bearing on the side of the wheel as collector, the difficulty was solved, and the balls and races would keep in perfectly good condition for a sufficient period to make the design worth while. We consider, therefore, that the difficulty has been solved, and a head having two sets of balls, one for the fork and the other for the wheel, is a practical project. They run quite sparklessly, and are cheap in maintenance costs, as only the centres are subject to much wear. The wheels run on standard front-wheel push-bike spindles and cones.

Mr. Vincent Edwards in presenting his paper gave some additional information in the course of which he said :—

Three years ago when our Bill was practically through Parliament there was practically nothing of value written on trolleybus conversion, so we made some mistakes and expenses were not kept quite as low as they might have been. Recently I have been in two towns in one of which they have put up an extension where the construction is very similar to the first. In other words, they had not learned some of the lessons which we have learned here. In the second town a new line has been constructed under the supervision of a man who has had lengthy trolleybus experience, and I could see at once how excellent the construction was, and I wished I could have seen it before starting my work here.

I would like to emphasise the tremendous reduction of congestion from the use of trolleybuses. In Hastings we have a large number of narrow streets and there is not the slightest doubt that the conditions this year are immensely improved compared with three years ago in spite of the tremendous increase in motor and other traffic.

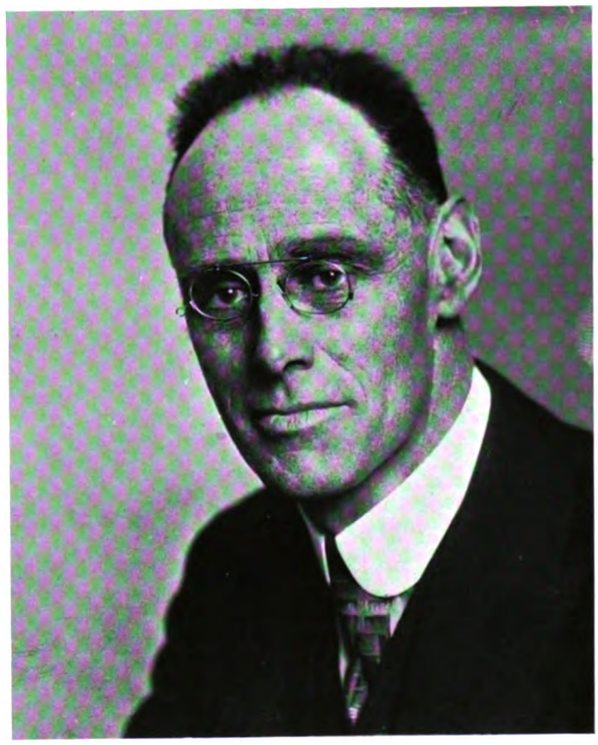
As regards trolleybuses instead of petrol omnibuses, the Hastings company had its own power station, two sub-stations, high-tension underground mains, and all the overhead equipment of the old tramways. Therefore we were in a similar position to that of any of the smaller corporations, because to change over from tramcars to petrol omnibuses must materially affect the economic running, having regard to the existence of the power-house, even with the grid system now being put up. My contention holds good because the more load that can be put on the grid obviously the better for the particular undertaking and also for the country.

There is a tremendous difference between putting up trolleybus wires and tramway overhead wires, and tramwaymen will possibly only realise it when they have been running trolleybuses for a year or two. It is desirable to obtain the services of a good trolleybus linesman to teach your staff, at any rate for the first route, but it is necessary for two or three routes before your own staff can be regarded as thoroughly efficient. Indeed, in Hastings there are still many places where the lines are not even now in the position I would like to have them. We made certain alterations at the start, but experience has shown that they were not nearly sufficient. However, they are all being dealt with as we get the opportunity. If you imagine a road which has an inclination to the left, say a radius of 400 to 500 ft., the tramway would be in the middle of the road and the overhead line normally would be over the centre of the tramway rails. When you begin to run trolleybuses down that road, however, the buses will tend to draw in to the left kerb. The trolley wheels will obviously be much more to the right of the bus as it proceeds. Therefore, the heads of the trolleys will have to travel much more rapidly than the base. The proper way is to erect the line so that it is only two or three feet from the kerb, as that will enable the bus to get round a stationary vehicle and also to run round the curve with practically no loss in speed.

With regard to trolley wire, the most radical departure I have made from standard practice is to use 6/0. Many people use 3/0 S.W.G. wire. I was told that it was quite impossible to use such a large diameter as 6/0, but it is up and running and we have also saved a very large expenditure for negative feeders. Using this heavy wire and erecting it on our old poles meant of course that reinforcement was important. The steps taken to deal with the poles are novel in one or two ways. First, there is the method of erecting the poles which is clearly shown in the paper, and an ordinary pole can be put up in fifteen or twenty seconds. The scheme is a good one and was developed by my assistant-engineer, Mr. J. A. Mather, who has been absolutely invaluable to me. I do like to give credit where it is due. The scheme was from a chat I had with Mr. Mather, but my original proposal was very different. We have only a few concrete poles in the town, but more of them near the depots. One reason for using concrete poles is that paint work in a seaside town is very expensive.

Mr. Edwards then exhibited specimens of the switches and crossings used on the overhead work at Hastings and mentioned how the special design of trolley-head was due to one of the working staff. Continuing he said : To a tramwayman this trolley head may appear rather heavy and cumbersome, but the speeds are very much higher on a trolleybus than on a tramcar, and it is necessary in order to maintain speeds through junctions and on curves that the overhead fittings should be sufficiently strong. Having explained the operation of the trolley head, Mr. Edwards mentioned that the bearing lasts from three to four weeks and only costs 1s. 1d. to renew. That was the only wearing part, and the remainder of the trolley head had in some cases been running for nearly a year without any signs of depreciation.

Dealing with the bow-string insulation, Mr. Edwards said : We use very cheap bobbin porcelain insulators for the majority



Mr. W. Vincent Edwards
Engineer and General Manager—Hastings Tramways Company

of our bow-strings on the bracket arms, and these cost 2¼d. each.

At the beginning all our trolley wire was round but now we use grooved wire exclusively of cadmium-copper, so that we get practically the same conductivity as ordinary pure copper.

With regard to sheds, fortunately, we have been able to knock out the ends of both our sheds so that we can run in at one end and out of the other, thus avoiding any reversing. That is a great advantage both in time and ease of manipulation. The pits have been concreted over, and for reinforcement we have used the hand rails and hand-rail stanchions off the old tramcars.

Originally we ran a single line tramway with passing places and the schedule speed was practically 7½ miles per hour. Now we have nothing less than 10.35 miles per hour. Even that does not show the difference in advantage, because in the old tramway days we had stopping places which were very carefully adhered to and we hardly ever stopped between to pick up people. With the trolleybus, however, we now pick up and set down anywhere, although I hope that may be altered shortly. Even then, we maintain a schedule speed of not less than 10.35 miles per hour as the lowest. On the longer runs on the more open lines where there are fewer

Digitized by Google

stops, our highest schedule is 13.20 miles per hour. It takes the old tramcar driver some time to get into these higher speeds, but many of our drivers are old tramway men and they have soon got used to the changed conditions.

A number of features about the system are special to Hastings. There are so many routes by which one can reach the same destination that the number of junctions is very large. At Ore four different routes arrive and there is only one turning circle. Therefore, we have put in what is parallel to a railway catch point. Supposing a trolleybus wants to stand off to allow the one behind to pass, the front one reverses and the trolleys pass over a couple of automatic switches which divert the trolleys and enable the following trolleybus to pass through. I have not seen that done anywhere else, but it certainly is essential in Hastings.

About costs, it might be thought that with 6/0 wire and all this reinforcement our conversion cost must be very high. As a matter of fact, for the 21 miles which we converted, which included some extensions, the cost per route mile for conversion was £1,383. The first section, including a little piece of new work, came out at £1,726 per mile, so that we have since made a considerable reduction and the reduction will increase as we gain experience.

THE DISCUSSION.

Mr. A. R. Hoare : As a director of the Hastings Tramway Co. it has been my privilege to share to some small extent in Mr. Edwards' experience here. He has converted the whole of this system at one fell swoop and kept his traffic going the whole time. In the course of a few months the whole system was complete. Mr. Edwards might have given us some views on rolling stock. He has a double-deck vehicle with an open top deck, and I hope he will tell us something about the success of that vehicle. Mr. Edwards says that the district was by no means an ideal one for conversion to trolleybuses, owing to hills and valleys and isolated patches of populous areas necessitating a straggling layout and a large number of junctions; but he answers the point immediately after by saying: "The steeper the gradient the better does a trolleybus compare with its petrol competitor." I do not ask you to compare the petrol omnibus with the trolleybus, but to see what the trolleybus can do. We contend that the trolleybus is eminently suitable for heavy and steep gradients, and that that is one of the reasons which makes it so suitable for a town like Hastings.

Mr. W. Vane Morland (general manager, Walsall Corporation Transport) first referred to construction costs, and said he presumed that Mr. Edwards had not added to them the cost of re-instatement of the road. A number of people are very anxious to ascertain the cost of road re-construction. In various districts the authorities, as the price of their consent, insist on the road being re-instated in the most modern form of construction, which is very different from what it was in the old tramway days. I would ask Mr. Edwards if by improving his curves and bringing the trolley wires nearer to the kerb he has considerably increased his maximum speed, and what he considers is the safe maximum speed for a trolley vehicle on a straightforward road with a straight line of wire in front of it? With regard to the use of grooved wire has Mr. Edwards overcome the difficulty which many have had? We can keep the groove all right and in its original position where there are two ears, but between the poles there is a tendency for the groove to creep round. One can twist it back again at the next pole, but we have found difficulty particularly when we are dealing with a curve where there is any side strain on the wire. There is quite a divergence of view on the question of tandem or single motors and I would like to know if Mr. Edwards has any reason to suggest that any practical results are obtained from the regenerative motor. On the flat I fail to see what results can be achieved other than certain braking stresses. On a gradient, of course, you must obviously get the same results. It seems to be agreed that the trolleybus undertaking is to be rated similarly to a tramway undertaking. This is not fair to the owners of the trolley vehicle undertaking, because the trolley vehicle has to pay a vehicle tax, which in the case of a large covered-top deck vehicle amounts to over £100 per annum. There is a case for some relief either from the vehicle tax or rates. With regard to corrosion round the root of the poles, the ordinary system of maintenance in the old tramway days completely failed to arrest corrosion, and we are, therefore, doing away with the ordinary cast-iron base and inserting an aluminium sheet clamped round the poles, riveted on *in situ* and well leaded underneath right down to the concrete base. Makers of galvanised wire are waking up to the fact that we have long wanted a better article, particularly where nozzling off—the weakest link in the chain—is concerned. Corrosion has always caused a considerable amount of unnecessary maintenance, and I wonder if Mr. Edwards has to persuade the galvanised wire people to provide a softer and more kindly description of wire. With regard to negative troubles, several engineers have found it necessary to take special steps in reducing the potential on the negative side, and I wonder if Mr. Edwards has any reason to instal milking boosters for that. Finally, what does Mr. Edwards mean precisely when he says, speaking of the rearrangement of the overhead lines of a tramway system for a trolleybus system: "If necessary by cutting pieces out of it." I was always brought up to the idea that rather than cut wire we should go back hundreds of yards and pull the line in and so avoid the use of splicing ears.

Mr. N. Clough (Clough, Smith & Co., Ltd.): One of the most important matters, which is not properly considered, is to decide how long the system is to last after it has been converted. The question arises as to how cheaply we can patch up an old tramway equipment to continue as a trolleybus service. The general manager should be asked to devise a system which will last twenty or thirty years. I am associated with various systems where the poles are corroded down to $\frac{1}{16}$ in., and the poles are virtual tubes of rust, yet they are being reinforced. In one case the pole was rusted to such an extent that there was a hole through which the engineer was able to put his finger. A new system of transportation should not be started on a basis like that. There are instances where old tramway systems have been patched up, and others in which the whole equipment is new and will last for twenty years, which is the life of the vehicle. There has been considerable controversy on the 6/0 trolley wire. Mr. Edwards tells us that this wire, which he is using for feeders, is excellent and cheap, but that feeder has a diminishing area as the trolley system increases and as the traffic increases. On most systems the revenue has increased by 33⅓ per cent. over the previous tramway traffic, and we cannot preserve increased revenue by diminishing the area of copper. Regarding trolley wires, the trolley wheel wears a groove slightly larger than the diameter of the wire. When the trolley wire is of two different sizes the trolley wheel wears in two separate places, and, therefore, the wheels cannot run as smoothly as if the wire is of uniform area throughout. I, therefore, suggest that instead of using a large negative and a smaller positive, there should be employed two large negatives or two medium size positives, and a negative feeder as an auxiliary erected on the side of the poles which is free from any wear from the trolley wheels.

Mr. D. E. Bell (general manager, Yorkshire Electric Tramways, Ltd.): Probably in Hastings Mr. Edwards has nothing to complain of about power costs, because his company has its own power station, but in some places companies buying current from a local authority are charged between 1½d. and 2d. per unit. On the other hand, the average price charged by municipalities to their own tramway undertakings is less than 1d. per unit, and the difference will probably add 1d. per trolley vehicle mile to the working costs. I have had similar experience to Mr. Edwards with regard to curves. We have found it necessary to take the trolley wires well inside the circle. On roads of varying widths we have to keep from 7 ft. 6 in. to 10 ft. from the curb and with the wires 10 ft. from the curb the vehicles can negotiate the whole of a 60 ft. road and get to the centre. My overhead line work was carried out by my existing tramway linesmen, and there has been no necessity for alterations since the first, but probably we have not so many curves as Mr. Edwards. With regard to the reinforcement of existing poles, the concrete will support the pole and there is not much likelihood of any more corrosion inside after reinforcement. Mr. Edwards used three ½-in. rods, but I use five ⅜-in. rods, and they are easy to fix. They are flexible and can be threaded in from the top and we space them the whole length of the pole instead of only at the bottom to keep the reinforcement rods apart. We do not stress the poles. We fill them up *in situ*, and so far they have been satisfactory. There is always a cavity for the concrete, and by tamping we get it to the bottom. Mr. Edwards states he gives a 3½ in. rake, but that is on the small side. I always give a rake equal to the size of the pole at its largest diameter. The costs in my case worked out at between £1,000 and £1,100 per mile, against Mr. Edwards' £1,383, but I suppose that includes the cost of the negative feeders.

Mr. Edwards : It includes everything.

Mr. Bell : We risked it and did not put in new negative feeders. I should like to know if the 7/0 negative feeder mentioned in the paper was fed at one point.

Mr. Edwards : At both ends.

Mr. H. R. Beasant (Bristol Tramways and Carriage Co.): Mr. Edwards stated that the trolleybus is capable of higher speeds than the petrol omnibus. If by that Mr. Edwards means higher maximum speed on the level, I do not quite agree. You certainly get higher schedule speeds under the correct conditions, but not a higher running speed under favourable conditions. The trolleybus scores not by reason of higher top speed but by reason of its greater acceleration and automatic adjustment of speed to suit the gradient and other conditions. With regard to Mr. Edwards' method of dealing with his negative return, I have not found any necessity

Digitized by Google

for two sizes of trolley wire, looking at it with a longer view than that of the mere conversion of an existing system. Does the author mean to use the 4/0 wire as a temporary expedient in order to keep it for its useful life or does he intend to use it as a permanency and retain two different sizes of wire? If so, it will introduce complications for the linesmen and storekeeper. After all, it is voltage drop that matters, and I see no reason why we should improve the negative drop over the positive. I suggest that Mr. Edwards will in the long run come to the use of equal size trolley wires. The notes on the trolley head are extremely interesting because we shall have to deal with bigger currents than with a tramcar with equivalent passenger-carrying capacity, and the question of the trolley head viewed as a current collector is of great importance. Can the author give us any idea of the life he is getting from the carbon brush, and what its effect is going to be on the maintenance costs? At first sight it looks as if it might introduce some difficulties while certainly getting over the difficulty of current collection. In the trolley head used in Hastings the current is still taken through a swivelling bearing. Does the author find any ill effects from that! I should have expected difficulty with a fairly large current passing through the ball-bearing. Can the author tell us what is the actual balancing speed of his vehicles on the level, and what speed will they attain when travelling straight ahead on a level road?

Mr. W. McGibbon (general manager, Mexborough and Swinton Tramways Co.): On one or two points I differ from Mr. Edwards. For instance, I find 6/0 wire very difficult to handle. To strain up 4/0 wire is difficult enough for the linesman to get the wires all to the same tension, and 6/0 wire would be more difficult. We have adopted 4/0 wire throughout and we have found it very satisfactory. The design of the overhead equipment is too important to be left to the discretion of the linesman, however good he may be. If experienced engineers are not available outside assistance is advisable. I expected to hear more about the rolling stock which, next to overhead equipment, is the most important matter in trolleybus working. One point that has appealed to us is the great importance of the difference between the braking required on a trolleybus and that on a motor omnibus. In the petrol engine itself there is a very efficient brake, whereas the trolleybus will run absolutely free when coasting downhill. Therefore, I should like some information as to the experience in Hastings with the type of brake that is being used.

Mr. W. E. Warrilow (New Distributors of Edison Accumulators, Ltd.): Electrical engineers object to reciprocating motion in a prime mover, and I congratulate Mr. Edwards on putting down this system in Hastings. Transport managers, and especially those who are electrical engineers, should not forget that work is still going on in the development of the storage battery. The trolleybus is preparing the way for this wonderful storage battery, and it will then be quite possible to scrap overhead equipment and use the present trolleybuses with a battery which will drive the same motors which may, perhaps, only have to be rewound. At present, the best we can do is 16 watt-hours per lb. of complete cell with the steel alkaline battery, but that will be materially improved at no distant date, and for that reason I regard the trolleybus as a natural electrical development in contradistinction to what I call the stink-wagons represented by the petrol vehicle. It is also a natural development on account of the grid. Further, it is possible for trolleybus engineers to experiment with storage battery vehicles, because there are great possibilities at the ends of trolleybus lines, and the storage-battery vehicle, with a trailer to carry the batteries, may be used to act as a feeder of traffic to the trolleybus line.

Mr. C. R. Tattam (Balfour Beatty & Co.): I would like to stress the question of the regenerative control motor, and I should like Mr. Edwards to say whether he has actually made comparisons of trolley vehicles running over the same routes with similar loading and other conditions, first with motors equipped with regenerative control, and second, with motors not so equipped? If so, what are the results he has obtained? I can quite appreciate there is a wonderful saving so far as breakdown is concerned, but as to current saving I am doubtful. Further, has Mr. Edwards found that there is a tendency to over-use regeneration and therefore to sacrifice speed?

Mr. R. H. Campion (general manager, Torquay Tramways): Mr. Edwards referred to two different trolley wires, 4/0 and 6/0, but there is likely to be trouble through the staff mixing them. As regards the author's excellent method of erecting poles, we sling a derrick on to the side of the pole and get them up very quickly. As the rails are the last thing to be taken up they cannot be used for making poles. In reinforcing existing poles, our reinforced concrete expert says he would want nine $\frac{3}{4}$-in. rods if there was $\frac{1}{8}$-in. of rust on the pole, in order scientifically to reinforce such a pole. I should like to know what the author's factor of safety is in using the reinforcement and how the concrete gets down.

Mr. B. England (general manager, St. Helens Corporation Tramways): The pole planting method described is very interesting. We have a somewhat similar arrangement. It consists of equipment which we made ourselves, fitted to a wagon so that it can be removed as required. It holds the pole at an angle of about 45 degrees and lifts it vertically, places it in the hole and holds it there until the job is finished, and it works extremely well. I assure Mr. Bell that his work at St. Helen's continues to give satisfaction, and no alterations have been made. As regards the necessity for keeping the wires on the inside of curves, we have found that when the trolley wire at the turning point is well on the inside of the vehicle, much more satisfactory working is obtained. In fact, it is no use working a turning point with the trolley wire outside the vehicle, for the circle of the trolley wire has a greater diameter than the diameter described by the vehicle in turning. I do not think we need be afraid of the storage battery within the next few years any more than we need be afraid of the radio-controlled vehicle. It would be interesting if Mr Edwards would let us have some information about six-wheel vehicles, costs and troubles experienced, if any, particularly back-axle trouble or rear-truck trouble, as compared with his four-wheel vehicles.

Mr. F. A. Garrett (Ransomes, Sims & Jefferies, Ltd.): The question that occurs to me is that of wear and tear on the transmission. Trolleybus motors are tending to creep up in size. About two years ago from 65 to 70 H.P. was considered about the right size. It has, however, gradually crept up to 80 H.P. and now certain operators are calling for 100 H.P. motors. With the larger motors it is just a question whether the wear and tear on the transmission plus the reverse stresses, with either regenerative or rheostatic braking, will not increase, and if Mr. Edwards could give us any information regarding his experience with regenerative control it would be valuable.

Mr. W. A. Stevens: The vehicles of the Hastings Tramway Co. are fitted with single motors and single commutators. The field winding is in two, one a series winding and the other a shunt winding, the series winding having about twice the number of ampere turns as compared with the shunt winding. When the vehicle is being started up and the speed increases, the current through the series winding naturally decreases, and when the vehicle has reached a speed at which the counter-electro motive force of the motor is equal to that of the line, of course there is no current passing through the machine at all, except through the shunt winding. When the vehicle descends a hill the counter-electro motive force of the machine exceeds that of the line and current goes back on to the line. In the early machines we put in, the current which went back on to the line had to go back through the series winding, and that set up a counter-magneto motive force and weakened the series fields. We got sixty amperes going back to the line, and at that point the field was sufficiently weakened so that no matter how fast the machine ran, no more current could go back. Within the last twelve months, however, we have fitted an arrangement on some of the vehicles so that when regeneration takes place the series winding is short-circuited. We did that with great respect and trepidation in the first instance, because we thought we should get very much greater retardation and that we might, in consequence, get a serious shock to the vehicle. Therefore, we shunted part of the series winding, but 10 minutes after getting the vehicle going we found that the retardation was quite gentle, depending on the position of the power pedal, and now we can go down any hill, I do not mind how steep, on regeneration only and without using the mechanical brakes at all. We have put as much as 180 amperes back on the line in retarding the vehicle and in sending that amount of current back at about 550 volts, your machines must have a great deal more electro motive force than the line itself. Therefore, the lamps would, in the ordinary way, suffer very considerably through increased voltage. In fact, when we first started, the old ladies in the trolleybus used to squeak because the lights went up so considerably. We have now an automatic arrangement by which a resistance in the circuit prevents any difference in the voltage of the lamps when regeneration is taking place or when it is not.

Mr. W. Tuke Robson (Equipment and Engineering Co.): The financial possibilities of complete conversion from tramways to trolleybuses seem so vast that it is very difficult to understand why anyone goes on running a small tramway at all, specially a single-line system with loops. The bad odour which the small tramway system has got into is undoubtedly due to the slow, erratic motion and constant delays caused by the passing places. Regarding the overhead equipment, it is all very well to reinforce poles and reconstruct an existing line, but an existing line in many places is not fit to be left up. What you want is new poles right through, together with span wires, and the whole thing should be sketched out on paper with a view to the artistic amenities of the district. That point will be forced on us if we do not tackle it quickly.

Digitized by Google

Mr. L. E. Harvey (manager and engineer, Ilford Corporation Tramways): I congratulate Mr. Edwards upon the excellence of his overhead construction, having regard to the number of difficult junctions. The point has been made in the paper that the linesman should be properly trained in trolleybus overhead construction, and I threw out the suggestion at the Managers' Meeting, at Leicester, that the Overhead Committee might undertake the work of advising any members who are starting to deal with trolley vehicles and help them with regard to proper lay-outs. We should have outside advice when we start, and this is the best means for securing that advice. I was surprised at my friend Mr. Vane Morland talking about grooved trolley wire twisting. I had something to do with the design of grooved trolley wire, and Mr. Morland ought to know that a grooved wire is essentially a round wire with two grooves in it and it does not matter if there are 50 twists in it; it does not make a bit of difference as to the contact of the trolley wheel.

Mr. H. England (managing director, Yorkshire (West Riding), Electric Tramways Co.): For the better part of a week I have been getting information on the Hastings system, and I realise now that the neat lay-out of a trackless trolley system is very important. During the last session or two of Parliament a dead stand has been made about overhead lines and particularly the erection of poles. County surveyors and a good many borough surveyors have gone so far as to say that no pole should be erected on account of danger to motorists, and they have even contended before Committees of Parliament that the motorist has a perfect right to run on to the footpath, and that there should be no pole erected there which would prevent him doing so. The erection of poles is a big stumbling block against the installation of the trolleybus system, and it is most illogical, because if the King came to Hastings to-morrow the first thing the Council would do would be to erect poles for decorations. A street without poles, I contend, is like an unfurnished room. I am amazed at what has been done in Hastings. As a matter of fact, I understand a very severe fight took place between the Corporation and the company originally on the question of the installation of this system, but there is no doubt now that the public want the trolleybuses.

The Chairman: There is no time now for Mr. Edwards to reply to the discussion, but it is proposed that he should give a detailed reply to-morrow morning. Before closing the meeting, however, I wish to propose a hearty vote of thanks to Mr. Edwards for his paper.

The vote of thanks was carried with acclamation.

Mr. Edwards: I expected to have a large number of criticisms, and thank you for the way you have taken my paper. If any little tips that I have been able to bring forward are of use, I would like to say that they are very largely, indeed almost entirely, due to my own staff for the way in which they have carried out the work. I have talked matters over with them, but they have almost invariably improved on my ideas.

The Conference then adjourned.

FRIDAY'S SESSION.

The Conference was resumed in the Queen's Hotel on Friday morning, June 13, when further consideration was given to Mr. Edwards' paper.

The Chairman: As Mr. Edwards has said, a great deal of the paper is taken up with overhead construction, but all of us, even those who are in the midst of converting their tramways to the trolleybus, appreciate that without a good overhead line the system will be a failure. One or two speakers do not like the idea of reinforcing poles. I suppose they want to sell us new ones. They have said that when converting to a trolleybus system we should allow for 20 years' life for poles. I have had about ten years' experience of 300 or 400 reinforced poles, and I have not had one failure. I have reinforced poles with holes in and they are still up. The system I have adopted is Johnson's standard system of reinforcing poles. The cost is 10s. 6d. per pole, and the reinforcement costs about 30s. or less. I would like the author to tell us if he is in favour of a turning circle or of a V. It appears to me that a circle turn, unless it is a very large circle, is not ideal. Also in his turning points and junctions, does the author still use grooved wire? It appears to me there might be difficulty in getting round circles with grooved wire. I am interested in the remarks about the trolley head, and have wondered if such an elaborate wheel is necessary. Is it an improvement on the old type of wheel?

Mr. Vincent Edwards, replying to the discussion, said: Mr. Hoare yesterday mentioned the open-top-deck vehicles in Hastings, and these are rather special. Many visitors who come here take joy rides. Mr. Vane Morland's points emphasise what I have tried to bring out in the paper, viz., how much the tramway engineer has to unlearn when he comes to be a trolleybus man. The costs of conversion which I gave only refer to the overhead line and where we have the negative feeders completed. Road costs are a different proposition. We agreed with the two Corporations concerned that they should do the road reconstruction, and that we should pay them so much per super yard. For macadam road or a certain length of wood paving we paid 3s. 6d. per yard. (**Mr. Vane Morland:** Who took the scrap?) The arrangement is that we lift all the metal work and keep it, but we relinquish the granite setts to the Corporation. Mr. Morland also mentioned de-wiring and an increase of speed. With trolley gear in fair order you can do 40 miles an hour. The great aid for a high schedule speed is to be able to run through junctions quickly. That means that the trolleybuses must be in first-class order. We had a lot of trouble to begin with, due to the sea air and the difficulty which it caused with regard to lubrication. Messrs. Brecknell have met the situation in the best possible manner. We have now roller bearings on all the 'buses. On the question of junctions, some of you went to Silverhill yesterday, so that it is not necessary for me to go into that matter now. As to the maximum speed, every vehicle is fitted with a speed indicator graduated from 0 to 30, and if I say the needles are sometimes hard over, I think that is sufficient. Mr. Harvey made some reply to Mr. Morland on the question of grooved wire twisting round. I can only surmise that Mr. Morland has in mind figure 8 wire, but I have had no experience of that. With regard to tandem and single motors, all our omnibuses are fitted with single motors. As a tramway man and with heavy gradients, I contemplated adopting series-parallel control, but we did not, and I am very satisfied with the single motor as the simplest and best for a trolleybus. I do not see why there should be any difference in the rating of a trolleybus as compared with a tramway system. Corrosion at the base of the poles has been mentioned. We examined a number of our poles, but we could not find appreciable corrosion. Nor have we since had trouble from corrosion at the base. I showed some of you yesterday one of the poles which have had a small concrete base formed round them at a cost of two shillings each. I think that is far the best protection, better than an aluminium plate which one speaker mentioned. Galvanised wire was mentioned by Mr. Vane Morland, and I wonder if he has used the special type which we have adopted. It is excellent and can be nozzled over without cracking. The great point with regard to galvanised wire and span work in general in Hastings is that we have a line running very close to the sea, and we have been used to excessive corrosion and leakage from our overhead line. After many experiments in insulations I found that the solution is to go back to the plain mica globe strain insulator, which we paint twice a year. The salt and sand does not stick to the plain round surface. All our span wire and nozzling is protected by rubbing in commercial vaseline. I am making experiments now with another compound which I believe is used by the Post Office. It consists of tallow and graphite and something else. Mr. Morland mentioned the cutting of the positive trolley wire. The point is that if you decide that a wire should be brought in 2 ft. and it happens to be on a curve mid-way between two section insulators, you have to alter a quarter of a mile of wire for 2 ft. A tramway company cannot afford to do that. All our positive wires are old, and many half worn out, so it is not very terrible to cut a lump out. The question of the period of time during which a conversion scheme should last was mentioned by Mr. Clough. In our case, the reinforced poles will last for many years. Mr. Clough suggested that 6/0 S.W.G. wire should be used as a feeder. Our difficulty is that in a pleasure resort we have to pay special attention to appearance, and I cannot get permission to run two 6/0 auxiliary wires throughout the system. People would complain of there being too many wires. The only solution, therefore, was to slightly increase the thickness of the running wires and so obtain the extra copper. We shall have to renew it more frequently, but if you take down a wire that has a fair amount of copper in it, you get the scrap value for it. As to the diameter of the trolley wires, for five years we have had a section of the road as a tramway running with 6/0 wire, and the remainder of the system is 4/0. I put up this section because I wanted to know whether our men could handle it and whether it was possible to carry it on ordinary bracket arm construction. There has been no trouble with the trolley wheels running over two different sections of wire. The cost per unit for current was mentioned by Mr. Bell. Our generating costs are about .7d. per unit, so that we get current fairly cheaply. As to the rake of 3½ inches in the reinforced poles being on the small side, the poles on the sea front were put up with that rake in 1920. Anybody who looks at them with a professional eye will not find much wrong. On the question of broadcasting interference, I may mention one extraordinary fact. When we put up some wires on the sea front, without connecting them at either end, we received complaints as to interference. When we coupled up the wires at both ends to the remainder of the overhead system, the complaints vanished. The question of running speed was mentioned by Mr. Beasant. If

Digitized by Google

my remarks do not give him the information he desires, I shall be pleased to discuss the matter with him. He asked whether I intended to retain the 4/0 positive and the 6/0 negative wire. Certainly not! A lot of the positive has been changed to 6/0, and we continued with the 4/0 tramway wires because there were several years' life in them. We are changing over as and when desirable.

Single Deck Trolleybus at Hastings.

When we have changed the whole of the wire to 6/0, the point arises whether it would be well to change over the polarity of the positive feeders and put them on the negative side, so that we should then be feeding through relatively high resistance wires and have all the present positive feeders on the negative side. I do not think

Showing Trolley Support on a Double-Deck Trolleybus.

it is possible to do that, because it is desirable to have the negative wire on the outside of the four, but it is rather novel to think of switching over the positive feeders to use them as the negative. I was asked as to the life of the carbon brush in the trolley head. It is from five to six weeks. The Chairman asked why I adopted such a complicated design. We did it for cheapness. Although it is a very expensive head to make, it is cheaper to operate for a year or two years. Originally we used the ordinary type of head; this new type has only been in use for eighteen months. The difficulty of handling 6/0 wire was mentioned by Mr. McGibbon. A gang which is used to handling 4/0 wire can soon tackle 6/0 wire. However, we shall soon have the one diameter throughout the system. Mr. McGibbon claimed that the design of the lay-out is an engineer's and not a linesman's job. Obviously it is a matter for the trolleybus engineer just as much for as for the linesman. The same speaker said there is a great difference between the braking on a trolleybus and on a petrol omnibus. Here we have Westinghouse air brakes, and we find them entirely satisfactory. Here again Messrs. Brecknell had some new troubles, partly because we were one of the pioneers in the use of air brakes on trolleybuses, but the firm closely gripped the job and dealt with it. We had a little trouble eighteen months ago from frost, but that was largely a matter of the lay-out of the pipe lines and actuating gears, filters, etc. Mr. Campion mentioned the spacing of the reinforcing rods in the poles. We found that voids occurred in the concrete in the poles and that the concrete does not always settle down solidly. Last winter we had one pole burst through the frost, but it was due to some water being trapped in the concrete. Some information was given by Mr. Stevens as to regenerative control, and I was very pleased to hear from Mr. Harry England that after a careful inspection of the system here he has not been able to find any snags. I also appreciate what Mr. Harvey said and believe that what he has suggested will be very useful. With regard to turning points and turning triangles, mentioned by the Chairman, one advantage of the turning triangle over the circle is that if the trolleybuses are always going round the same circle, the wear on the tyres is obviously bound to be rather accentuated on one lock, whereas with a triangle you get equal wear. You notice that effect more on a six-wheel vehicle than on a four-wheel vehicle. We have several very nice turning circles which are perfectly satisfactory. With a turning circle of 60 ft. it is not very bad, but if you can get a good triangle it is perhaps better.

Mr. Burton then presented his paper on The Tramcar: Present and Future. In an introductory speech he said:—I feel a little diffident seeing that considerable scorn has unjustifiably been placed upon the tramcar, but the object of the paper is to view the tramcar from the point of view of what developments are possible. Tremendous development is possible, and it has been proceeding more rapidly in the last year or two than for many years previously. Twenty-year old cars are running at the present time and are compared with up-to-date modern trolleybuses and petrol omnibuses, but until we get more up-to-date tramcars the three vehicles cannot fairly be compared. I hope it will not be long before a great percentage of twenty-year-old tramcars will be replaced by modern vehicles. With regard to trucks, after about thirty years' experience my feeling is that the truck has not had sufficient thought put into it. We are inclined to look on the truck as the blacksmith's job. It may be so, but it is supposed to run for 20 to 25 years, whereas many a far more up-to-date chassis will find it difficult to run for that period. The electrical equipment has had much time and money spent on its development, and to-day it is capable of any speed required. The trolley gear also is rapidly developing and I think the development of the trolleybus is assisting considerably from the point of view that the tramcar is the only vehicle on the road on which the driver has to stand up hour after hour. That, I think, will be changed in the future as remote control is being developed and also foot control. I see no real reason why a tramcar driver in the future should not sit down and drive with his foot in the same way that the trolleybus or petrol omnibus is driven. I have not stressed obsolescence, or alleged obsolescence, of the tramcar because I refuse to believe that there is anything obsolete about a modern car. The old tramcar, like any other vehicle that has been on the road for 20 years, is, of course, obsolete and should not be there. I think these cars are still on the road because they were made too well in the first instance. At the present time everybody has his own vehicle and will have nothing else, even if it is a copy of what was on the road twenty years ago. It is very difficult to get managers to accept a standard vehicle. They will take a standard omnibus, or even a standard trolleybus, but they will not look at a standard tramcar. Just after the war I was foolish enough to get my chief to make one hundred tramcars to a standard design, but I spent more time and trouble in trying to sell thirty of them than I have done in selling three hundred in the ordinary way, and I therefore cancelled the balance.

Mr. Andrews: I do not think there is any need for me to add to what Mr. Burton has said. One thing we as authors of the paper are convinced of is that the tramcar is not dead. It is a question of what is going to be its life and in which direction it is going to live. We have indicated briefly the lines on which we think development will take place, but we should like to have the views of operators.

Digitized by Google

THE TRAMCAR: PRESENT AND FUTURE.

By J. L. BURTON,

Manager, Road Transport Department, English Electric Company, Limited,
assisted by
H. H. ANDREWS, Sales Manager, Traction Department.

The real interest derived from a study of past and present products, whatever may be their nature, lies not in themselves, but in the extent to which they form the basis of the productions of the future. It is axiomatic that nothing stands still; it either moves forward or goes backward, and until recently the development of the tramcar has been so nearly stationary in appearance, although not structurally, that it has become a question in many people's minds as to which was its future direction of travel. It is perhaps for this reason that in some quarters it has seemed destined for the backward path, even to the extent of its disappearing from the scene completely. The advent of the petrol-driven omnibus, with its, in some respects, superior mobility, has been hailed as indicating the doom of the tramcar.

It is perhaps as well that this invasion of what was at one time practically a monopoly of passenger road transport has taken place, for it has given a definite impetus to the modernisation of the tramcar, and the opponents of the tramcar, in reckoning upon its early demise, have not taken into account the development of which it is capable.

The arguments against tramcars generally are, of course, as well known in the tramway world as they are outside it. It is cumbersome, it is slow, its adherence to fixed rails renders it inflexible in itself and a hindrance to other traffic. It is noisy, it is uncomfortable. Even if this be correct, the tramcar still retains many advantages on the score of capacity for handling traffic and cheapness of operation, which leave it a force to be reckoned with. In citing these possible disadvantages, however, the opponents of the tramcar speak really of the tramcar of the past, only to a certain extent of the tramcar of the present, and when one considers the possibilities and probabilities, very little of the tramcar of the future.

There is one feature of a tramcar which cannot be eliminated, namely, its inability to deviate through traffic. This disability is, however, a relative one, provided the vehicle which is fixed to its rails starts and stops with sufficient rapidity to enable it to keep pace with the general stream of traffic. It then ceases to become a hindrance to other traffic, and it follows that its average speed in a city is approximately the same as that of the other traffic. It has been claimed by a high tramway authority, not without a certain amount of justice, that in providing a fixed and undeviating line of traffic through the centre of a road, the tramcar is a definite advantage, and not a disadvantage, as it impels the traffic to observe the rule of "safety first" by keeping to its own side of the road. In fog and other adverse weather conditions the tramcar services can safely be maintained when other forms of transport have to cease running, and the fact that the tramcar is running on fixed rails undoubtedly gives a feeling of security to the passengers.

As has been mentioned earlier, a study of the present-day tramcar is interesting from the point of view that it is the forerunner of the future tramcar; equally, a comparison with the tramcar of the past is of interest in showing in what direction the tramcar is developing.

There are three primary considerations which must always be kept in mind by both users and producers of tramcars, and these all relate to the passenger, for whom the tramcar is really built. The three things that the passenger wants are—a cheap ride, a comfortable ride and a quick ride—and within reasonable limits it is difficult to say to which of the three he attaches the most importance. Now as regards cost, this paper does not propose to discuss the relative advantages of the tramcar and other forms of locomotion. Anyone interested has at his disposal an accumulated mass of figures which state the case, but the onus of proof of a cheaper form of transport is on the opponents and not on the adherents of the tramcar. As a side issue, however, any corporation or company considering the relative merits of a tramway as against another system must take into account the source from which the motive power is derived. In the case of a tramcar—and this, of course, equally applies to the trolley omnibus—power is generated either by a local or a national power station, and the power station uses coal, which is a British product. While there may be variations in the price of coal, the proportion which the cost of coal bears to the total cost of distributed energy is not so large that variations in the price of coal seriously affect the cost of power. The motive power, however, for any internal combustion engine is for the most part, so far, a product which has to be imported into Great Britain. It is subject to wide fluctuations in price, the price being largely controlled by agencies abroad. Not only are there fluctuations in the price of the fuel, but the fuel itself is subject to taxation. Consequently, no estimate of costs can hold good for any extended period.

This point may be considered a digression from the subject of the paper, yet in its bearing on cost of operation, and consequently on the economical fare that can be charged, it is directly concerned with one of the three considerations which affect the travelling public.

As regards comfort, a great deal has been effected recently, as a comparison of the light spring-cushioned transverse seats now in use with the longitudinal hard wooden seats of the past will show. However, comfort depends on more than a cushioned seat. The seat is but the final link in the chain which transmits road shocks to passengers, so that the question of comfort has to be studied from the rails upwards. Considerable improvement has been made in the four-wheel truck by extending the wheel-base and adopting one form or another of pendulum gear in an endeavour to overcome the swaying of the vehicle caused by the overhang of the body.

With maximum traction type trucks with two pivotal points set well apart the pitching and swaying of the vehicle is considerably reduced. The design of the maximum traction type truck, however, has progressed very little. In many cases it is still fitted with spiral helical springs only. When one examines the equal wheel bogie vehicle it is noticeable that leaf-type springs are used almost universally, and their omission, or partial omission, from the other types is due to the inherent difficulties of design. The details of truck design affecting the point would involve a study outside the possible length or intention of this paper, but the authors' opinion is that, for easy riding, a car mounted on a pair of equal wheel bogies gives the best result.

Consideration for the comfort of the passenger involves, of course, other details besides that of easy riding. Ventilation, lighting, heating, stairways and entrances all have their bearing on the question. The importance of these details is well known, and they are too numerous to itemise. The question of heating is probably the most difficult, but it is not a problem which is an acute one in this country.

The last consideration, namely, rapidity of travel, is the one which is of most interest from the technical point of view. It cannot be too much emphasised that on a heavy traffic route rapidity of travel depends not on a high running speed, but on acceleration. Up to the present time accelerations of about 3 ft. per second per second have been considered adequate in most places, and so long as the other vehicles on the street did not accelerate at a greater rate this was sufficient. There are, however, now many vehicles accelerating on an average up to 4.4 ft. per second per second, and to keep up with progress the tramcar must be capable of doing the same.

Higher acceleration can be obtained in one of two ways—either by using a larger gear ratio or by using a higher starting current. The modern traction motor is capable of utilising an accelerating current 100 per cent. in excess of the one-hour rate without harmful sparking at the commutator, and the only question which arises, and which must be treated on its merits in each individual case, is whether in doing so the motors will be over-heated in service.

It will generally be found, however, that for city services, on routes with frequent traffic interruptions or on routes with stops of more than six to the mile, a better schedule with lower energy

Digitized by Google

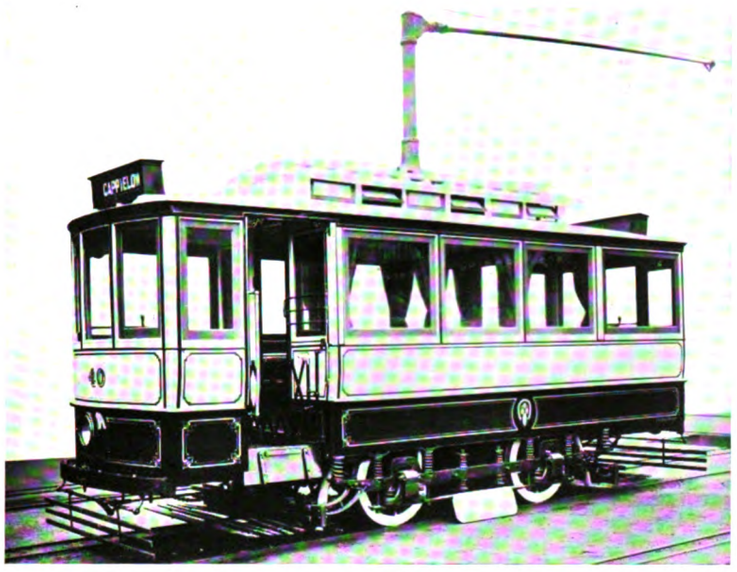


Fig. 1.—Early Single-deck Tramcar.

consumption can be attained by means of high acceleration than by a car capable of high speed. The raising, however, of acceleration to over 3 ft. per second per second introduces a new factor into the question of the control, which we propose to deal with later, and it also affects the design of the truck. 4.4 ft. per second per second necessitates a mean tractive effort at the tread of the wheels of approximately 350 lb. per ton. Tractive effort, however, is not represented by an even torque, but by a series of peaks and depressions as the controller is moved from notch to notch. To obtain a mean tractive effort of 350 lb. per ton means that peaks in the neighbourhood of 420 lb. per ton will be obtained, and 420 lb. per ton is just about the adhesion between wheel and rail under slippery conditions. Consequently, it necessitates the whole weight of the vehicle being on the driving wheels, and eliminates the possibility of using the maximum traction trucks where the weight on the driving wheels is according to type from 65 to 80 per cent. of the total weight.

The schedule speed of the vehicle is, however, not entirely a matter of acceleration, tractive efforts and maximum speed attained. It is dependent as much as anything else on the length and time at each stop, and this in turn, though not wholly, is largely dependent on the facilities for loading and unloading. It must be readily conceded that the combination of an entry and exit on one entrance platform is not ideal; a low step facilitates quick loading and unloading, whilst the distance the passenger has to walk to the exit governs the length of time he will take to get off. The practical effect of this is a matter of simple arithmetic; consider a service of seven stops per mile, a schedule speed of 10 M.P.H., and an average of 12 seconds per stop. If steps can be taken to reduce the period per stop to 8 seconds, the result will be an increase of schedule (not actual) speed to over 11 miles per hour. In effect, the same number of passengers can be carried in the same time with a reduction of 10 per cent. in car miles, 10 per cent. in power and maintenance, and 10 per cent. in capital costs of rolling stock. Having dealt as briefly as possible with the general conditions which should govern the design of a tramcar, we proceed now to discuss the present-day tramcar by describing a few, but only a few, of the latest examples.

From its commencement the tramcar, like every other road vehicle, was designed to resemble something already in existence, and the earliest electric tramcars were modelled on the horse-tramcar, which they superseded. The circumstances of the case, however, insisted on some improvement, owing to the increased power available, so that they became larger and heavier. The earlier types, naturally, consisted of a single-deck vehicle, rigidly mounted on a four-axle truck, but it was not long before this type was found to be inadequate for dealing with the passengers to be carried. An illustration of the type long out of date is shown in Fig. 1. This vehicle had a total length of 28 ft. and a seating capacity of thirty.

The development which then took place was curious, inasmuch as while the majority of the English tramways developed extra seating capacity by building a double-deck tramcar, this practice has hardly been copied abroad at all. The tendency in America, on the Continent, and in the British Colonies has been to develop larger single-deck cars mounted on double bogies, frequently with the addition of one or more trailers.

In Fig. 2 is shown the next development of the English tramcar with an open-top deck. In all its essentials it remains the ordinary single-deck tramcar, with a stairway at each end and seats on the roof. A comparison of this car with that shown in Figs. 3 and 4 (L.C.C. 1929) covers the general progress of car construction very nearly up to the present day, and it is interesting to note how little the outside appearance of the car has altered. A roof has been added to the upper deck, the seating capacity has been very greatly increased, and more attention paid to the seating and ventilation arrangements.

Whilst, however, the outside appearance of the car has not altered appreciably, an important change has taken place in the electrical equipment. By careful design of the traction motor the weight per horse-power has been very considerably reduced, and the table given below shows the progress which has been made in this direction.

The motors referred to are motors supplied to the L.C.C. over a considerable period of years, and the continuous rating of each motor has been used in order to arrive at a uniform basis of comparison.

Motor.	Continuous Rating H.P.	Wt. complete, including gear-wheel, gear-case and pinion.
A.	13 H.P. 525 Volts.	2,356 lbs.
B.	42.0 H.P. 525 Volts.	2,647 lbs.
C.	42.5 H.P. 525 Volts.	1,856 lbs.

In the past year or two, however, definite steps have been taken to bring not only the appearance and arrangement of the tramcar, but the details of its construction, more into line both with the requirements of the passenger and with the developments that had been made available by the use of new materials and types of construction. One development, however, which goes back more than the last year or two is that of providing vestibule ends, thereby giving protection to the driver and to the ingoing and outgoing passengers. This development, however, cannot as yet be said to be universal.

The difficulty that arises, however, in describing what we may call "the present-day tramcar" is that the length of life of the ordinary tramcar is such that at any time we may see on the road tramcars that are only a few weeks old and others that are over

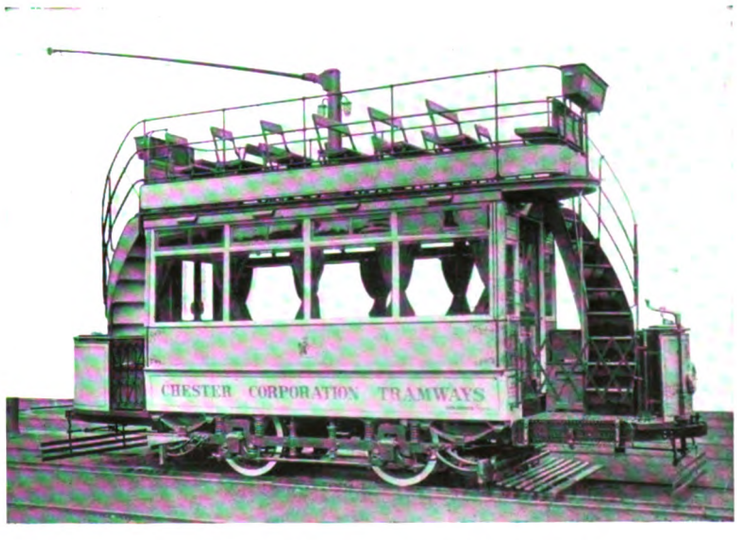


Fig. 2.—Early Top-deck Car without Cover.

Digitized by Google

Fig. 3.—1929 London County Council Top-covered Car.

20 years, and, advantageous though this may be from the point of view of low cost of depreciation, it means that of necessity a very large number of antiquated types are still in service, comparing unfavourably with more modern vehicles of other forms of transport. In speaking, therefore, of the present-day tramcar, we refer particularly to those vehicles which have been built in fair quantities in the last two or three years, not to those which have been built many years ago and are still running, nor to those which are either in course of construction or being built experimentally.

As examples of the present-day tramcar we may take the two new types of L.C.C. tramcars, one with a 2-motor equipment mounted on maximum traction trucks, and the other a 4-motor equipment on equal-wheel bogies. The tramcar bodies themselves are, however, very similar in appearance and in design. They represent the latest form of the standard tramcar with the maximum possible seating accommodation for a given space and weight. Although conforming in general appearance to many other tramcars on the road, there are several distinctive features of construction. Both the underframe and the side structure of the lower saloon are constructed from rolled and pressed mild steel sections, with panels of mild steel plate. At certain points where there are concentrated loads or strains to be provided against, bolts and rivets are used, but in general the framing and plating is electrically welded.

The top cover is built up of a series of aluminium alloy castings surfaced with semi-hardwood, to which the external panelling is secured, the panelling being of aluminium sheet.

Special attention has been paid to ventilation, which is provided in the lower saloon by means of hinged glass ventilators for "all one-way operation." All the ventilators on either side are operated together by means of a rod and lever. In addition, there are four automatic air extractors, two on each side of the saloon. Ventilation in the upper saloon is provided by means of drop and sliding windows, hinged ventilators, and two automatic air extractors in the roof.

All the seats in the lower and upper saloons are of the transverse throw-over type with the exception of four longitudinal seats in the lower saloon.

The cars mounted on maximum traction trucks are equipped with two 57.5 h.p. motors, and those on equal-wheel bogies with four 32.5 h.p. motors. On the 4-motor equipments the motors are connected permanently in pairs in series, so that each motor is designed for half voltage.

The control in both cases consists of a hand-operated cam-type controller mounted at each end of the car.

This type represents what may be called the "peak" development of the original tramcar. It is the original tramcar enlarged, provided with the maximum seating capacity that can be arranged for, and while several new features of construction have been incorporated, it cannot be said that in general appearance it presents anything novel.

Naturally there is going to be no complete break-away from this type, which, after all, has been developed within the limits of loading gauges which must be observed, but within these limits development is now being made on three distinct lines. First of all, a low-loading vehicle; secondly, a totally-enclosed vehicle; and, thirdly, a vehicle in which facilities are given for quicker loading and unloading. Each of these features has attached to it other improvements, many of which are as yet in their infancy.

To attempt to analyse all types of modern tramcars would be far beyond the scope of this paper. The subjoined table, showing the characteristics of certain interesting types at home and abroad, is not meant to do anything but bring out certain salient features of present-day design. One point that will be noted is the similarity of results so far obtained in different types in regard to the floor-level. The new Milan cars, which are of American type, the new London car, which is referred to later and which represents the combined effort of both railway and tramcar designers, and the new Liverpool car, which is designed with a novel form of truck and drive, have respectively floor-levels of 29⅛ in., 27½ in., and 28½ in. The lowest height, viz., 27½ in., has been attained by using a wheel diameter 2 in. less than the other types. It would look, therefore, as if for the present we have reached the limit in design in this respect.

The next noticeable point is that both in the case of Milan and the London tramway systems the seating accommodation in the later cars is less than in the older ones.

A further analysis of the Milan and the new L.U.T. cars brings out another interesting feature. The Milan car is a single-deck car, but it has 47 seats, as against 64 in the London double-deck car, the difference in length being approximately 14 in. The standing accommodation on the Milan car is given as 73, as against 36 on the London car. This, however, is probably due not so much

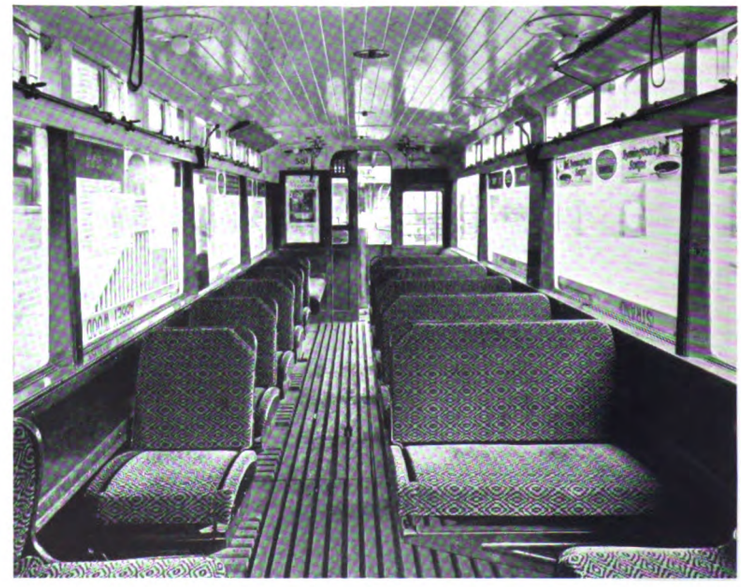


Fig. 4.—1929 London County Council Top-covered Car Interior.

Digitized by Google

to the actual space provided as to the number of passengers which may be accommodated per square foot of floorspace in one country and another. Taking seating accommodation, however, alone, the Milan car is built at a weight of 570 lb. per seat and the London car at 585 lb. There is obviously, therefore, not much to choose between them from the point of view of lightness of construction, but if we only allow for 36 standing in the Milan car, which is the same as the London car, the Milan car weight is 325 lb. per passenger and the London car 374 lb. per passenger.

In passing, it is also noticeable that the Liverpool car, which is 5 ft. shorter than the Milan car, only seats three fewer passengers. This, however, is due to the excessive standing accommodation allowed on the Milan car, and equally it will be noted that the Liverpool car weighs rather more than the Milan car, but the Liverpool car was not designed with any special view to lightness of construction.

trucks are to be employed. A light-weight metal construction has been adopted, so that a reduction in the weight of the body has been made from 10 tons 11 cwt. to 8 tons 15 cwt. Not only has the height of the floor-level been reduced at the entrance, but the floor of the saloon is level with the platform floor. The motorman's cab at each end is projected from the vestibule. Double entrances are provided at each end.

Seating accommodation is provided for 64 passengers, 22 of whom are accommodated in the lower saloon and 42 in the upper saloon, but at the same time the large enclosed platforms at either end provide considerable standing accommodation for dealing with rush-hour traffic. There are, however, no partitions, so that the saloon extends from one motor-man's cab to the other, not only providing the maximum amount of accommodation and freedom of movement, but also providing a clear view and better appearance.

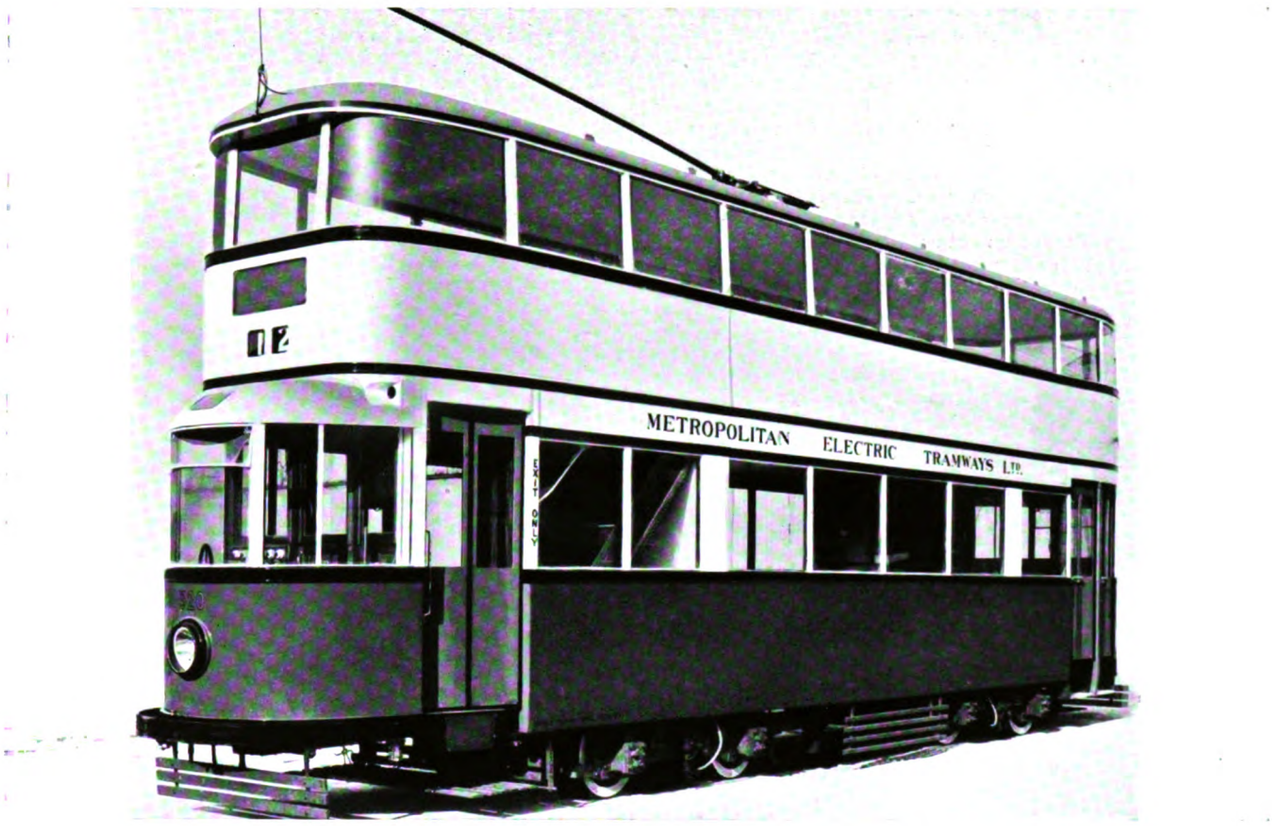


Fig. 5.—London United Tramways, Top-covered Car.

COMPARATIVE SCHEDULE OF RECENT TRAMCARS.

	Milan Old	Milan New	L.U.T. Old	L.U.T. New	L.C.C. 2-Motor	Liverpool Special	Toronto Motor Car	Toronto Trailer Car
Overall Length	51′ 1″	42′ 2″	34′ 8″	40′ 11½″	33′ 10″	37′	47′	46′ 9″
Floor Level ..	32″	29⅛″	33½″	27½″	34″	28½″	32½″	32½″
Passengers—								
Seated ..	55	47	73	64	74	44	52	56
Standing ..	77	73		36			53	24
Total ..	132	120		100			105	80
Tare Weight-lb.	50,716	27,100	37,000	37,400	*35,000	32,396	42,000	33,000
Tare Weight per seat	920	690	505	585	475	736	694	
Tare Weight per passenger ..	272	225	505	374	475	736	405	

* *With the four-motor equipment the tare weight is* 39,500 *lb.*

An interesting development in tramway practice which does give an indication of the future development of the tramcar has been made by the Tramway Management of the London Underground Group (Fig. 5). The vehicle is of the double-deck totally-enclosed type. It is mounted on two equal-wheel bogies, with 24-in. diameter wheels. This wheel diameter, in conjunction with the general design of the car, has reduced the height of the floor-level from the 2 ft. 9½ in. in the older type of tramcar to 2 ft. 3½ in. We believe, however, that in the new vehicles under construction the wheel size is to be increased to 28 in. and that maximum traction

Probably one of the features which would strike any observer on this tramcar is the elimination of minor and irritating forms of decoration that were at one time thought necessary in tramcar construction. Its pleasing appearance is as much due to its simplicity and continuity of line as to the harmonious decoration.

The driver's compartments are totally enclosed. Specially low controllers of the hand-operated type have been arranged for, and this enables the driver to be seated or standing at will. The folding doors and exit step from the main lobby behind each driver's cab are mechanically operated by the motorman from his driving position.

A point that will be noted is that every window except the end and corner windows can be opened. The windows are of the "raise and lower" pattern, giving a maximum clear opening of 12 in., and particular attention has been given to the window fittings, so as to provide the maximum of glass and the minimum of fittings.

The general construction offers several points of novelty. The framework of the upper and lower saloons is in one unit, being made up of light pressed steel pillars from sole bars to roof, with steel angles and duralumin gussets. The whole superstructure is riveted together independently of the panelling and is secured to a light-weight steel under-frame. The exterior panels and the roof sheets are of aluminium, with the exception of the dash panels, which are of mild steel. The same simplicity of line which has been noted in the interior arrangement is in evidence on the outside as well.

Although much has been achieved in the design of this vehicle, and whilst it marks a step forward, we think that it will be conceded

Digitized by Google

Fig. 6.—Toronto Transportation Co. Single-deck Car.

by the designers that it is only a stage forward in the development of the tramcar, and that many of the features tentatively embodied are capable of still further development. It will be particularly interesting to follow the general results obtained from this type of construction.

While the British tramcar is developed, of necessity, for British conditions and British needs, it may not be out of place to consider for a moment the development which has taken place in the tramcar elsewhere. Almost without exception the big American, Continental and other systems adhere to the single-deck car, but, leaving aside the use of the upper deck, it will be noticed that the lines of development are the same as those of the more recent developments in England. They have, however, paid, if anything, rather more attention to the question of quick loading and unloading, as is shown in the typical illustrations of the cars of the Toronto Transportation Company and the Milan Tramways (Figs. 6 and 7). Both these tramways, as well as many others, provide centre as well as end entrances. It will be noticed also that they have developed the completely-enclosed car, and in the case of Milan a low-loader. The Milan car, it should be noted, is entirely of American design. The Toronto system, like many others, uses a trailer during rush hours. Before dealing with possible future developments, we propose to continue the description of the present-day tramcar as regards trucks, motors and equipment.

Comment has already been made that the electric tramcar is a development of the horse-drawn vehicle. It was natural, therefore, that the early tramcars should employ a similar type of truck where the body was carried on two axles, the framing being of rigid design. It is rather remarkable that this early type of truck, of which there are several examples, has continued in use with very little alteration to the present day.

Whilst this type of truck, with the subsequent alterations in design, has given, and is continuing to give, excellent service, there can be no doubt that, where the conditions permit, the use of bogie trucks is to be recommended, and this is in line with modern railway practice, where the double bogie is used in order to give maximum smoothness and comfort in running.

Where a two-motor equipment is used there are still advocates for the two-axle truck, and it is interesting to consider the way in which development is proceeding on both the bogie and the two-axle type of truck.

Referring now to the two-axle type of truck, this has passed through three stages—the rigid-axle type of truck, wherein the axles are maintained rigidly parallel; the second stage, in which the axles are allowed transverse movement, as in the swing-axle truck; and, thirdly, where the axles are allowed to move radially as well as transversely.

Regarding the second modification, where provision is made for lateral movement of the axles, this swing-axle device or pendulum gear can be arranged either so that the stirrups for the axle-box springs are hinged to saddles, which are pivoted to the tops of the axle-boxes, or the axle-boxes are provided with side extensions, from which the axle-box springs are carried by swing links. In both cases the axles can move laterally, independently of the truck frame and car body, and this allows the axle to absorb shocks which would otherwise be carried straight through the axle to the car itself.

Generally, trucks of this description give easier riding and less wear of the track and the wheel flanges. The motor suspension bars are also arranged to swing in a similar manner in order to avoid any restriction of movement of the axle.

The third stage has been the provision of a flexible or radial axle, for which two general principles have been adopted in the design—one in which the axle-boxes are allowed freedom for movement in the side frames by being suspended from the main truck frame, and, alternatively, two sub-trucks are provided, each arranged with an axle and axle-boxes, and these sub-trucks are pivoted to the main truck members. Trucks built as in the first alternative are less complicated than those of the sub-truck type, but generally do not allow the same freedom of movement on sharp curves.

With trucks of this type it has been common practice to house the traction motors in a line parallel with the axles, and then transmit the drive through straight spur gearing. Considerable development in the material used for the spur gearing has taken place, particularly within recent years, and, whereas before the war the split type of gear-wheel, made up of cast steel, was practically predominant, it has now become standard to specify solid forged gear-

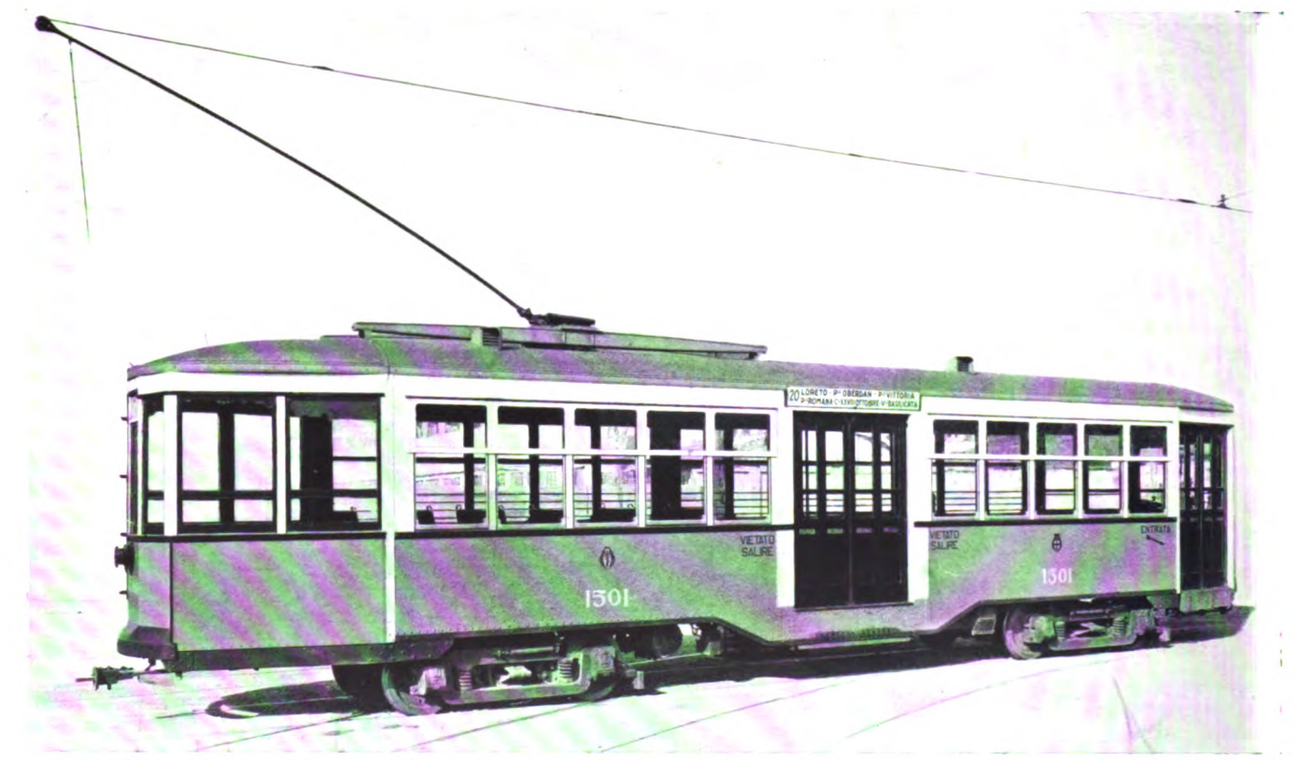


Fig. 7.—Milan Tramways Single-deck Car.

Digitized by Google

wheels and pinions of high tensile steel, in accordance with the B.E.S.A. specifications. Various methods of hardening the gear-teeth are in use, and such a material advance has been made by the adoption of the forged steel wheel with accurately cut and, in some cases, ground teeth, that not only has the mileage obtainable from the gear and pinion been considerably increased, but greater silence in running has also been made possible.

As a modification of this drive, gears of the single helical type are being largely experimented with, the main object being to reduce the snatch on the gearing when power is applied to the motors.

Referring now to the question of the double-bogie type of car, it is interesting to consider the different lines of development between the type of running gear employed in this country and abroad. Generally speaking, in this country the tendency has been to use two-motor equipment, whereas abroad, and particularly in Canada and the United States, development has been more on the lines of the four-motor equipment.

In developing the two-motor equipment to the maximum it was found when driving only one axle in each bogie, with the wheels of equal diameter, that the permissible tractive effort was limited, owing to the lack of adhesive weight. As a result of this the maximum traction truck then came into being, in which the driving wheel is of considerably larger diameter than the non-driven wheel, and where the bogie centre is displaced in order to allow a higher proportion of the weight to be taken by the driving wheel than on the pony wheel.

Here, again, with this type of truck, until recent years, the standard drive has been with the motor axle hung and parallel to the axle, the actual drive being through straight spur gearing. Abroad, the maximum traction truck has never found general favour, and where double-bogie cars are in use equal-wheel bogies have been employed.

As in this country, the motors are axle-hung and the drive is taken through straight spur or single helical gearing.

The demand for higher speeds, light-weight motors, less noise, reduced maintenance on track and car equipments, and the success of the spring-borne engine with cardan-shart drive on the standard motor-omnibus, have directed thought to the possibility of arranging the traction motors as a spring-borne unit fitted with high reduction gearing.

The necessity for higher speeds to meet competition from other forms of transport lies mainly in the necessity for greater acceleration, and the cardan-shaft and worm-drive, or double reduction gearing, renders this possible by allowing for a higher gear ratio, but still permitting the use of a small road wheel.

The fact that only a portion of the gearing is carried on the axles, leaving the traction motor and the remainder of the drive spring-borne, immediately makes for reduced maintenance both on the equipments and the track. The question as to the actual reduction obtained is as yet indeterminate, since the effect on the track cannot be ascertained without a complete conversion of a route to this form of drive.

As the teeth of the gearing are always in mesh the noise of the reduction gear is reduced to a minimum, and the arrangement lends itself well to the provision of an oil-tight oil-bath for lubrication purposes.

In this country we can take as three typical examples the worm-drive and cardan shaft as fitted in Portsmouth, the special worm-drive which is now running in Sheffield, and the special bevel-drive which is in operation on the Liverpool system. The two first applications are fitted to two-axle trucks, while the latter arrangement is fitted to a bogie car.

Referring to the Portsmouth car:—High-speed light-weight motors are carried from a bracket suspension carried from the car body, the drive being taken from the motors via a universal joint, through a cardan shaft, and finally through a worm and wheel of the enveloping type. The provision of the universal joint on the cardan shaft allows for all inequalities between the axles and the driving motor. This method of drive follows very closely auto-

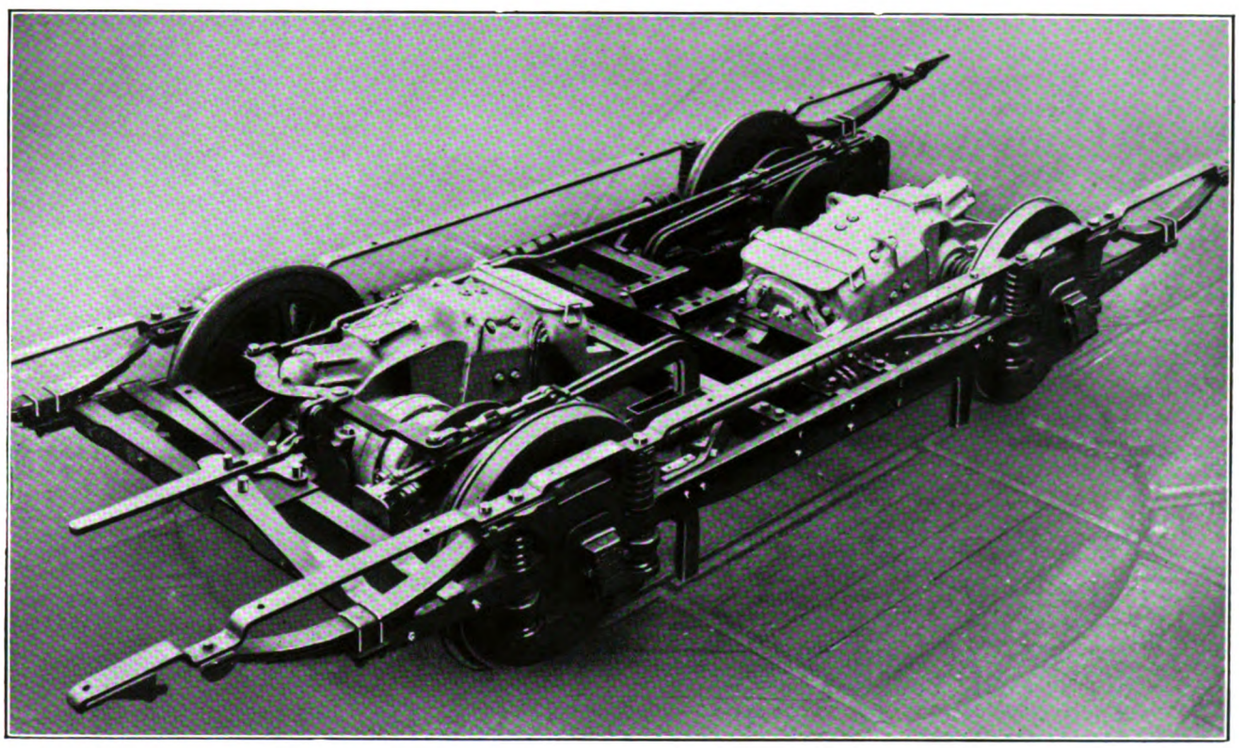


Fig. 8.—Sheffield Corporation Tramways. Worm-drive motors mounted in 4-wheel Truck.

mobile practice and is representative of further experimental drives at Hull, Halifax and Manchester.

The second and third examples, however, can be regarded as definite developments of the tramway motor drive without reference to external development. A full description of the Sheffield worm-drive was given in a paper before this Association at the last annual conference, and it is sufficient here to make a brief reference to the special features of this type of drive.

The Sheffield type of worm-drive is of particular interest in that an endeavour has been made to dispense with the cardan shaft of what may be termed the motor-car drive. In this arrangement the motor, with its complete worm-drive carried in an extension of the motor casing, is supported from the main frame and rigidly bolted to it. The worm-wheel is mounted in a rotating hollow sleeve or quill, which surrounds the axle, but is quite free to move relative to it by the amount of the movement on the axle springs. The drive is transmitted from the hollow quill to the axle through a universal coupling, so arranged that while the angular movements are solidly transmitted, there is freedom of relative movement, both lateral and transverse.

A feature of this type of drive is the small amount of unsprung weight on the axles.

Fig. 8 shows a pair of these special worm-drive motors fitted in a Sheffield truck.

Digitized by Google

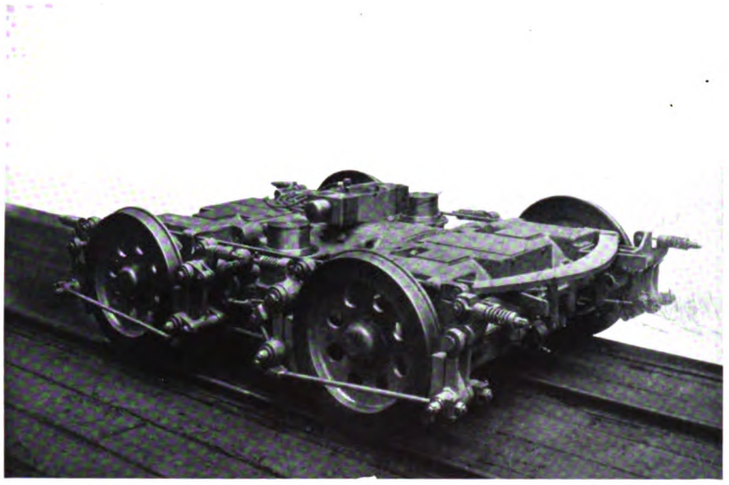


Fig. 9.—Liverpool Corporation Tramways. Four-wheel drive Motor Truck with Spiral Bevel Gearing.

We now come to a further development, namely, the bevel-drive, as fitted to the Liverpool car (Fig. 9). A definite attempt has been made to utilise the motor frame as a portion of the bogie truck, and in fact the motor actually forms the truck, the axles rotating in journals carried from and part of the motor-car case. The car body is supported on two large semi-elliptical springs per bogie, whilst each motor is supported on four coil springs at the axle journals. This means that the only unsprung weight is that of the wheels and axles, together with the axle bearings.

The armature is extended at both ends to receive the driving pinions, and each pinion engages a spiral bevel-gear mounted on the driving axles. Each gear is mounted on a quill surrounding the axle, and the quill, in turn, is supported on large ball bearings.

At each end of the quill a flexible drive is arranged for transmitting the power to the driving wheels.

The armature rotates in roller bearings, and as no appreciable wear takes place in these bearings the correct pitch-line between the gear and the pinion is always maintained. This ensures smooth and silent running of the gears. All the gears, flexible drive and bearings receive their lubrication from oil baths contained in dust-tight housings. Only one aperture for filling is required for each end of the truck.

This is a considerable saving in maintenance time, as the four filling holes on a double-bogie car fitted with the special drive compare with twenty-eight filling-places on a four-motor standard bogie car.

In America investigation into the problem of reduced weight and increased acceleration has also directed attention to the possibilities of the high-gear reduction drive, and brief mention is made here of the two most recent developments. A double-reduction type, in which double-reduction helical gearing is carried in a gear-box, which is carried by the axle, and a second type that closely follows automobile practice, where the drive is taken by cardan shaft to the axle through a differential.

Referring to the former arrangement, the motor is spring-borne from the truck frame, and as the gear-box is carried by the axle at one end and the motor frame at the other, it can be considered that approximately half the gear-box is spring-borne. The drive from the motor is taken through fabric couplings to the high-speed shaft of the reduction gear, and as there is relatively little movement between the motor and the gear-box, the fabric coupling has an easy duty. Roller bearings are fitted throughout, so that the gearing always runs in constant mesh. With the large gear reduction possible a very high-speed motor can be used. This arrangement has generally been used with four-motor equipments, where the motors can be arranged in pairs in permanent series. This permits the full reduction in size of the motor to be made, as with the reduced voltage across the motors there is less likelihood of flash-overs at high speeds, and in addition the commutator has fewer bars, and can therefore be of more robust construction. Fig. 10 shows a bogie truck with two double-reduction drive motors mounted in position.

With the worm and differential type of drive the motor is mounted longitudinally in a cradle arranged to form a torque member, and from each motor a cardan shaft transmits the drive through a universal joint to a differential on the car axles.

The road wheels are carried on stub axles tied together across the car, and this permits free movement of the wheels without necessitating movement of the entire axle.

The wheels are, of course, guided by the rails on which they run, but the differential allows the wheels to follow the curves closely without grinding.

Fig. 11 shows the general arrangement of this type of drive.

The control apparatus for the tramcar is almost too well known to need any description. The principal item is, of course, the driving controller, and for many years this was a drum type controller, fitted with blow-outs on each notch, and capable, when required, of providing electric braking. These controllers were, with a few exceptions, designed to control two motors.

While various minor improvements were made in these controllers from time to time, the first fresh development was the advent of the cam-type controller. In this controller, instead of contact fingers making their circuits through contact segments on a rotated drum, the drum is fitted with a series of cams, which open and close a bank of contactors in their correct sequence. The advantages of this controller consist of a quicker and cleaner make-and-break of contact, easier renewals, and greater current-carrying capacity, owing to the greater contact pressure obtainable than with the plain drum type.

A further development has been the introduction of a line contactor, the object of the line contactor being to break the current on shutting off power and thus relieve the contacts of the controller from the effects of arcing. This naturally prolongs the life of the controller tips. This line contactor is, in some cases, a separate piece of mechanism electrically controlled from special contacts fitted to the main controller. In other cases it is mechanically operated and contained inside the controller frame. In most cases in this country all that is required of the controller is to operate

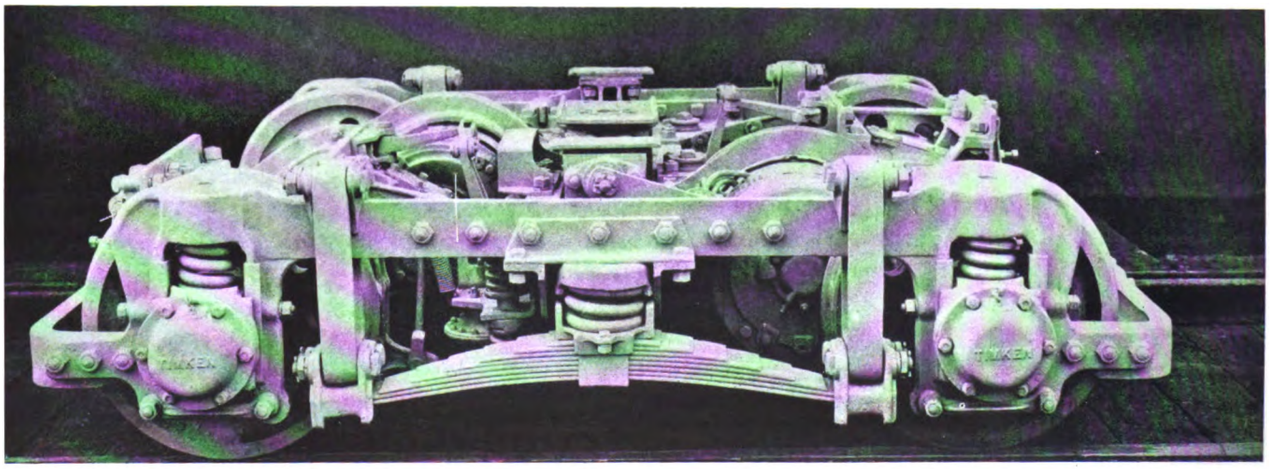


Fig. 10.—Double-reduction Geared Motors mounted in Truck.

Digitized by Google

two motors in series-parallel, because comparatively few systems use four-motor equipments. The same general type of controller is also used in the case of four motors where the four motors are designed for full-line voltage. On the very recent four-motor equipments which have been built the motors are designed for half-voltage and connected permanently in pairs in series, so that for control purposes the two-motor controller is all that is required.

While, therefore, certain technical developments have taken place in controller design, the general feature embodying an upright self-contained manually-operated controller at each end of the car has remained unaltered from the commencement. Both driver and controller occupy a considerable amount of space, and between them represent from 4 to 5 cwt. imposed on the extreme end of the tramcar, that is to say, at the point where it is least desirable to have unnecessary weight.

The question of trailer cars has not been an urgent one in this country and consequently what is known as "straight control," as against "multiple unit control," has been almost the only one considered. Straight controllers have, however, been built in certain cases for operating the motors on a trailer car as well as on the motor car. This arrangement is in use in considerable numbers in many places abroad under varying conditions. In the Toronto Transportation system, for instance, the motor cars are fitted with four motors and the trailer cars with two motors. The main

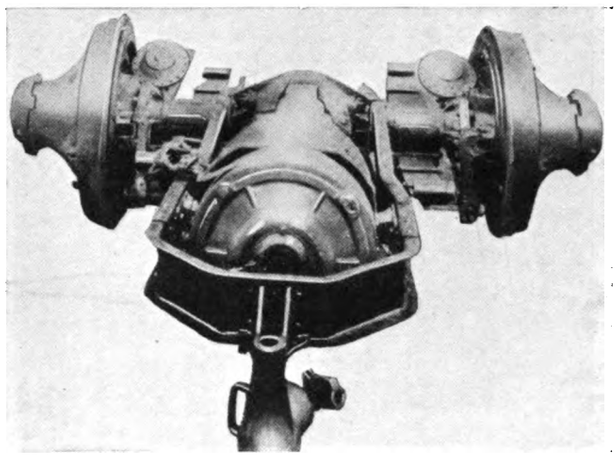


Fig. 11.—High-speed Motor arranged for Cardan Shaft and Differential Drive.

controller, therefore, controls six motors, and in addition a small shunting controller is provided on the trailer car so as to enable it to operate solo in case of necessity or in the tramcar depot.

Experiments are now being tried with new types of control, the principle aimed at being to make the work as easy as possible for the driver and to economise as much as possible in the space occupied by the driver and controller. This is achieved by fitting each car with a remote operated controller.

Incidentally, it is obvious that having made a remote operated controller, this can be operated not only from its own car, but from any other car to which it is coupled, by means of a simple system of electric or pneumatic couplers.

The introduction of a remote operated controller achieves more than one object. The main current-breaking equipment can be removed from the platforms of the car, and in its place is provided a small hand-operated controller requiring the minimum of effort and movement, or a foot-operated controller possessing the same characteristics. The movement of either type of master controller is necessarily a small one, and to reduce the movement to its simplest form it is generally so arranged that the main controller will notch-up automatically once the movement has been started by the master controller.

Automatic acceleration of this type is carried out under the control of a current limit relay, which regulates the movement from notch to notch, according to the current passing through the motors.

Automatic acceleration has been in use for a considerable number of years in the United States, and the latest types are generally provided with a variable automatic control, that is to say, the driver is provided on his master controller with two or more settings for his current limit relay. He can, therefore, adjust the rapidity with which his controller notches up to meet the conditions of the line and the conditions of traffic. If he is working in light traffic and has a tendency to get ahead of schedule, all he has to do is to set his acceleration to the lower limit and the controller does the rest. Equally, if he has been hindered by traffic, and has to make up time, he sets to the maximum acceleration. Variable automatic control of this type is in use in Detroit, Chicago, Pittsburg, St. Louis, and on many other systems in the United States.

Up-to-date controllers, whether hand or remote operated, have been generally provided with 8 or 9 notches, usually arranged either as 4 series and 4 parallel, 4 series and 5 parallel, or 5 series and 3 parallel. For accelerations up to 3 ft. per second per second 9 notches have proved adequate but, with a speed-up of traffic, many systems are aiming at 4.4 ft. per second per second, and an increased number of notches is necessary to provide smooth acceleration.

The provision of more notches reduces the current peaks of each notch, and this, combined with the high rate of acceleration required, has brought into being a further development in control apparatus. An automatic remote-operated control is now being tried out in which the progression of the main controller from notch to notch is dependent on a mechanical time element. The time taken and the number of notches are so regulated that the current peaks are kept to reasonably small dimensions, and the progression is not subject to the rather delicate adjustment which would be necessary on a current limit relay set to deal with a succession of small current peaks over a very short period of time. At the same time, the current limit relay is retained in the motor circuit, arranged so that if the progression of the controller is too fast, as might be the case when accelerating up heavy grades, the current limit checks the controller movement until the motor current is reduced to a predetermined value. This system has been developed independently, both in Great Britain and in U.S.A., and is being tried out on the London United Tramways and in Detroit.

Reference has been made in this paper to the necessity for high acceleration in order that the tramcar may compete satisfactorily with other forms of modern transport. High acceleration by itself, however, would be quite useless if adequate means of stopping the car were not available. Opinion is divided as to the most suitable method of braking to adopt. Generally it can be stated that the hand brake, with brake-blocks acting on the wheels, is no longer a suitable service brake in densely-populated cities where high schedule speeds have to be maintained, and a more efficient form of brake must be used to assist the driver.

As in other details of tramcar design, there is a considerable difference in the practice obtaining in this country and abroad. Development in this country has been, first, the hand brake applying brake-blocks to the wheels, then in parallel the hand-operated track brake, the rheostatic brake, the magnetic brake, the air brake applying brake-blocks to the wheels, and finally the magnetic-cum-air track-and-wheel brake. Abroad, air brakes acting through brake-blocks on the wheels have been extensively employed in conjunction with a hand brake acting through the same brake digging. In this country the tendency appears to be in the direction of the separate air brake, where normal braking is by air through brake-blocks on the wheels, leaving the magnetic brake on the controllers for emergencies or, alternatively, combining the air and magnetic brake so that the first application of the controller handle gives an air application to the wheels and further movement of the controller applies the magnetic brake-shoes to the track, the final movement giving the electrical connections to the magnetic track brake.

Abroad, again, considerable experimenting has been carried out in recent years with brake-shoes bearing on drums or discs carried on the axles. Further work has also been undertaken in the use of transmission brakes where brake shoes are applied to an extension of the armature shaft. It is believed, however, that this latter application has not been altogether satisfactory, owing to excessive breakage of the armature shafts.

This brief survey of the present tramcar and its equipment, and of the development in progress, leads us to that most interesting speculation—the tramcar of the future. But before venturing into the realm of prophecy we would like to recall the title of the Association—The Tramways, Light Railways and Transport Association.

It has been a misfortune, from the general transport point of view in this country, that the tramways have remained so distinctly tramways and have neglected, or been compelled to neglect, their functions as light railways.

The unification of transport systems is becoming more and more an urgent question, and it would be regrettable if every opportunity were not now taken for developing not only the tramway, but its further field of usefulness as a light railway. To limit the tramway to city and urban traffic, and to cut it off from its sphere as a connecting link between adjacent towns, is imposing a handicap that is not only unfair, but financially unsound. Just as the schedule speed of a train is largely dependent on the time taken at each stop, so is the schedule speed of a passenger dependent on a through

Digitized by Google

run without changes. It should not be too improbable a vision to foresee the big arterial roads, the construction of which is beginning in many places and which will form a network in the big industrial areas, provided with sleeper tracks, giving a high speed, cheap and comfortable means of communication.

For town traffic, and to attain a schedule of, say, 12 M.P.H., it is necessary to have a tramcar capable of accelerating at 4.4 ft. per second per second and capable of operating up to 28 M.P.H. In inter-urban traffic, with, say, one stop per mile or per 1½ miles, to attain a schedule of 30 M.P.H. a maximum speed of about 40 M.P.H. will be required, and on sleeper track this is only just a little out of the range of the present-day tramcar as far as horse-power is concerned. It is technically quite easy, therefore, to provide, within the limitations of weight and size of the modern tramcar, a vehicle which will provide a schedule speed of not less than 12 M.P.H. in town traffic and a schedule of 30 M.P.H. for inter-urban working on its own track. Fig. 12 shows what can be done in the way of providing a separate track for the tramcar, and it can be expected that in road planning in future such a provision will be made.

As to the vehicle itself, the natural question is, what will it be like? We suggest that in the first place it will be a vehicle mounted on two equal wheel bogies. It will be built up to the maximum length that the curves and regulations of its particular town permit. It will have a small wheel diameter, probably not more than 26 in.,

THE DISCUSSION.

Mr. Desmond James (Aluminium (II), Ltd.): I was very interested in what the authors said as to the use of light alloys for tramcar construction in the future. In this country we are considerably behind other countries in that respect, and I am anxious to learn why there is such a prejudice in this country against the use of light alloys. Light aluminium alloys are the cheapest form of light alloys and are adequate for our purpose.

Mr. W. Vane Morland (general manager, Walsall Corporation Transport): I should like to compliment the authors on their courage. There has been so much criticism of tramcar operation during the past few years and so much undue publicity of the fact that a number of authorities for various reasons have found it necessary to scrap their tramways, that a considerable proportion of the public has accepted the view that the tramcar is obsolete. I agree with the authors that this is by no means the case. In viewing the market for tramcars of the future, one has to visualise the large cities with considerable capital invested in tramway undertakings and dense populations to carry, and last but not least, the large overseas tramway operating authorities, who will obviously have to carry on tramcar operation for a considerable number of years. In the large cities the problem lies more in the terminal operation than in the urban operation. In another place I once propounded the theory that several of our large cities might well

Fig. 12.—Typical view of Arterial Road with Sleeper Car-track.

and will be totally enclosed. There will be entrances at each end and in the centre, so as to provide one-way traffic through the car itself. Owing to the higher speeds required it will be provided with air brakes, and the compressed air will be utilised for automatic closing of the doors and probably for operating the control. The driver will be seated, and probably be partitioned off, so as to prevent interference from the passengers.

The control will be automatic and probably foot operated; it will be provided with two or more settings, to allow for variable acceleration.

For systems working on inter-urban routes the cars will be of the saloon type, and in many cases it will be found that, owing to high schedule speeds and suitable design, these cars will adequately serve the urban as well as the inter-urban needs. Only in the densest population will it be necessary to provide a double-deck car, but whether the car is double-deck or single-deck, it will be designed with semi-rounded ends and smooth sides.

The car construction will either be of light alloy material or a combination of high-quality steel with light alloys embodied as far as possible to reduce weight.

The type of drive is still too open a question to attempt to forecast the future; probably it will be found that several types will be adopted, each being of particular advantage on individual services, but the general tendency will be towards a light-weight high-speed motor with the maximum gear reduction possible.

Taking it all in all, it will be a very different vehicle to what we have been accustomed in the past. It may even change its name; it may become a street-car. But, whatever it may be, this vehicle will, if it takes advantage of what modern science has to offer it, never lose, but will retain and increase its importance as a passenger-carrying medium.

consider the question of tubular terminals, i.e., that at a point adjacent to the city centre the cars should enter tubes and that the services in the terminal area should be conducted in tubes. I was told that the suggestion was financially impracticable, but I venture to say that it is not financially impracticable if one visualises the fact that in Birmingham, Manchester, Leeds, Glasgow, and other similar cities the streets have reached the 100 per cent. saturation mark. Therefore, it is not entirely a problem for the local authority. It is more a national problem and one in which the Road Fund should offer substantial assistance. In that way use might be made of the fine arterial road that we now have adjacent to many cities, and by that means tramways will undoubtedly continue to be operated and even to be extended. The authors refer to the equal-wheel bogie. If that comes about it will mean that history will repeat itself. Many of you remember the old Blackpool and Fleetwood tramway. I was talking this matter over with Mr. Furness, and he assured me that the equal-wheel bogie, which is the rule on that line, is still giving very fine service. I would like to ask the authors if, supposing we adopt the equal-wheel bogie, they would suggest a four-motor equipment rather than a two-motor equipment, and if for a four-motor equipment they would adopt the new method of drive, namely, the worm-wheel, or retain the ordinary pinion gear. On a recent visit to two tramcar manufacturing works I found there are still apparently two almost separate schools of thought with regard to construction. At one works they had just completed a light-weight model composed of light alloys, and a really marvellous reduction has been made in the weight of the vehicle on the basis of the weight per passenger. On the other hand, one or two tramway authorities are engaged in constructing very substantial cars, as far as weight is concerned, largely composed of steel, and I was assured by one general manager that this was undoubtedly the type of vehicle required in his district. It is curious to compare these two vehicles; in the first case weight reduction has

Digitized by Google

been carried out to a most remarkable degree. On the other hand, weight reduction was secondary to an immense vehicle strength. The only other point I wish to make is in connection with the introduction of light alloys. As a result of experiments the old prejudice and fears with regard to light alloys have been shown to be groundless. The stresses and strains to which light alloys can be subjected with perfect safety are so marked that as the composition of the alloys becomes more and more perfect the light-weight tramcar will be just as much an accomplished fact and just as much in service as the light-weight omnibus.

Mr. F. A. FitzPayne (general manager, Edinburgh Corporation Transport): It seems to me that the whole question as regards tramways largely hinges on the financial side. We are told by the authors of a number of things that we can do, but they all cost money. The policy adopted in the tramway industry during the past few years has led up to the present position, because in many cases the resources of the undertaking have been dissipated by too cheap fares and by not providing for proper renewals. Thus when the day of reckoning comes we are confronted with the problem of re-equipping tramways and making them up-to-date. At the same time we have no money to do it with. A simple way out of the difficulty would be to abandon tramway routes which do not pay as tramways and equip them with omnibuses. That may be a wise course where the finances are not in a sound position.

Mr. A. E. Newton (Vacuum Oil Co., Ltd.): I would like to say how deeply impressed I have been with the national significance of meetings of this kind where experts are able to exchange ideas and views. This altruistic exchange of views and ideas is for the benefit of the travelling public.

Mr. H. England (managing director, Yorkshire (West Riding) Electric Tramways Co.): It seems to me there is no difficulty in modernising tramcars. Our great problem is that we have to maintain the permanent way. We all know that with modern motors and equipment and the use of light alloys we can get an ideal vehicle but the other consideration outweighs that entirely. The authors state that they are anxious to provide a seat for the motorman. Those of us who went into this matter in the old days know that it is not so easy as it sounds. In dealing with a double-ended vehicle fitted with a top deck, the trouble is to provide the driver with adequate protection and to prevent the draught from the staircase. In the old days drivers were ruined with rheumatism; that was when they sat with a horse rug round their knees. When electric traction came in that trouble disappeared, but drivers now suffer with varicose veins. If the man is to be seated he must have adequate protection on all sides, and he is much better standing up if he is in a draught. You will never convince people in the hilly districts that there is a brake equal to the mechanical track brake, but no man can apply a mechanical track brake seated. There is another point arising out of the paper which is really a contradiction; it relates to sleeper track construction on arterial roads. We have had some experience of that, and with a short wheel-base car sleeper track construction is nearly impossible. On the other hand, if you want a long wheel-base car which is only practicable with sleeper track construction, it is impossible in the centre of a city. Mr. Morland mentioned the Blackpool and Fleetoood line. The coaches on that line partake more of the design of railway carriages, and if you want easy riding on any open track construction you must have the bogies well spaced, otherwise it is almost impossible.

Mr. W. W. Adam (Societa Italiana Ernesto Breda): It may interest you to have a little more information with regard to the new tramcars that have been introduced into Milan. These have accommodation for 70 passengers seated and 70 standing, or 140 altogether. The cars are fitted with four 25-H.P. motors, spring mounted, very thin steel is used for the bodies which are very light, and the driver is seated. The Director of Transport in Milan told me recently that by re-arranging the traffic routes and going round the centre of the city they have increased the capacity of the system by 10 per cent., and with such large cars he is able to handle the traffic very easily. There is practically no omnibus competition, and on suburban routes outside Milan there are lines on which a motor coach and two trailers attain high speeds, so that omnibuses cannot possibly compete. The roads also are not so good as is the case around London. What the passenger wants is speed with comfort, and that is what he gets in Milan. On the Milan cars the passengers enter at the end and leave at the centre. The Milan public travel by tramcar because it is the quickest and most comfortable mode of transport.

Mr. C. R. Tattam (Messrs. Balfour, Beatty & Co., Ltd.): I think Mr. England was correct when he mentioned that our trouble mostly arises from the fact that we have to run on a permanent way which has to be maintained, but apart from that I think the tramcar is a victim of the war. But for the war I believe the tramcar would be running to-day and holding its own, especially if from time to time the Government had listened to the pleas of this Association for the revision of the liabilities imposed by the Act of 1870 with regard to the permanent way. During the war period, chiefly on account of the inability to obtain material, it was impossible to maintain either tracks or rolling-stock. Immediately after the war the costs of both material and labour soared so high that we were unable to keep pace with maintenance, and also found it impossible to build up sufficient reserves to meet renewals. I believe that but for that fact more tramways would be in existence to-day, because they would have been so improved that other vehicles would have not been able to compete. We must all support what Mr. Hoare said yesterday, namely, that there is a place for the tramcar, a place for the trolleybus and a place for the petrol omnibus. For large cities the tramcar will be indispensable for years to come. On the other hand, we must face the fact that the smaller systems, which are of single line with passing places, are becoming defunct. That is shown by the number of trolleybus Bills which have been passed during the last few Sessions.

Councillor W. D. Forsyth (chairman, Walsall Corporation Tramways Committee): I think the Edinburgh representative put his finger on the weak spot so far as tramways are concerned. The short experience I have had has convinced me that the tramcar is the cheapest mode of transport, and will remain so until we get the crude oil engine. As the Edinburgh representative said, the great difficulty is that in many cases we have not the money with which to re-lay the lines. While the lines are in good order the tramcar is the cheapest mode of transport, but when you have to face re-laying the lines at present costs, then in many cases it will be found cheaper to adopt omnibuses.

The Chairman: As usual, Mr. England pointed out our difficulty, but do you really think that it is altogether due to the permanent way? My opinion is that if managers, companies and committees had woke up some fourteen or fifteen years ago and modernised their cars, giving thought to the comfort of the passengers in the same way that the omnibus people have done, tramcars would be with us much more to-day. I listened to papers read before the Association twenty years ago on the modernising of tramways, but nobody ever modernised—they only talked about it. Even in recent years we have large cities like Manchester buying new tramcars of the same design as in 1902. One speaker has tried to blame the war for our difficulties, but I do not think it can be blamed for the present position of tramways except that during the war many undertakings made money and started buying omnibuses. The authors blame the managers for not accepting standard cars, but is it altogether the fault of the managers? What about the manufacturer? Does the manufacturer build experimental tramcars and demonstrate them round the country as omnibus people are doing? Mr. Burton says he made one hundred standard cars; I should have liked to have seen them. I expect they were the same design as he made in 1900, and that that is the reason why he has not sold them. However, we are grateful to the authors for their excellent paper, which gives valuable information for all who are modernising their tramways.

THE AUTHORS' REPLY TO THE DISCUSSION.

Mr. Andrews, replying to the discussion, said: Mr. James has referred to the ultra-light tramcar. Generally speaking, I think the difficulty hitherto has been expense. Light alloys cost money, but if the light-alloy car becomes more generally used no doubt the cost will come down. There have also been difficulties in manufacture. About a week after the paper was printed I had the privilege of seeing a light-alloy car being built on the Continent, and the builder told me that it was a long time before they could get the exact correct method of manufacture of the alloy. There were difficulties due to crystallisation of the material, which was duralumin. The car did not contain a piece of metal that was not duralumin. The vehicle was for the city of Naples and by the adoption of this very light type of car it is hoped to avoid a considerable expenditure upon increasing feeders and sub-stations. It is estimated that by using duralumin cars it will be possible to increase the number by 30 per cent. with the present power supply. This car, however, is still experimental. Mr. Morland mentioned an interesting proposition in referring to tubular terminals. In our opinion a tramway system to-day must be considered in relation to all the circumstances applying to the area which is being served. Mr. Morland also asked whether with a double bogie car we would recommend two or four motors. If you use double bogies you require the drive on all the wheels; whether we shall be able to use one motor driving on two axles is in the nature of an experiment. The Liverpool truck has been described in the paper. So far it has only run about 10,000 miles, but there is no reason to anticipate that it will not run many times that mileage. In the circumstances, therefore, it is impossible to prophesy whether the future equipment will be two or four motors. As to whether it will be worm drive

Digitized by Google

bevel drive, or spur drive, I am afraid we shall have to leave that to the future. It is no use prophesying until the various new forms of drive have been tried out. The question of permanent way was mentioned by several speakers in relation to the cost of maintenance and replacement. I think there is not the slightest doubt that there are some systems on which it will not pay to replace the track, but there are others where it will pay. It is, however, difficult to strike a definite dividing line. It is a question of density of traffic and nothing else. Where dense traffic conditions prevail it remains to be proved that any other class of vehicle can deal with the traffic as adequately as a tramcar. The cost of track re-laying can only be considered in relation to the existing financial circumstances. One aspect of this matter is to regard transport as a national question. Tramway undertakings, omnibus undertakings and railways should not be regarded as separate entities cutting each other's throats. The Government authorities ought to get all these interests together and co-ordinate them. If the Government does not do that nobody else can. The question of seating the drivers of tramcars has been raised, and I appreciate that it is very difficult to say whether you would prefer to have rheumatism or varicose veins. However, if the driver is protected I do not see why he should not be seated and at the same time not have rheumatism. There are modern types of tramcar on which the driver is protected from the weather as well as from interference by the passengers crowding on the platform, and we have indicated in the paper that we regard this attainment as one of the features of the tramcar of the future. I do not think a seat for the driver and full protection from the weather is difficult to incorporate in a tramcar. Mr. England mentioned the desire in some parts for the mechanical track brake. If you can have a mechanical track brake you can have an air-track brake, and I do not see why a tramcar should necessarily have mechanically-operated track brakes when other vehicles using the same gradients do not have these brakes. I allude to trolleybuses, petrol omnibuses, lorries and other road vehicles. Yet they are safe, and I do not see any reason for insisting on a mechanical track brake which necessitates the driver standing up. Mr. Forsyth mentioned that the tramway is the cheapest mode of transport and will be until the advent of the crude oil engine. That is just the difficulty of prophesying as to what is going to be the future of the tramcar. The crude oil engine may come in and sweep everything else away, and before the crude oil engine has lasted many years something else may come in and sweep that away. In the meantime, we have to take what we have and make the best of it. I think it is agreed—whether it is due to the war or other circumstances—that the best has not been made of the tramcar in the past. It started as the only thing on the road, and it remained as such for a long time. Now it is faced with competition, but I think that competition is going to stimulate development in the design of the tramcar. There are a large number of towns where only the tramcar can deal with the traffic problem.

Mr. Burton : Mr. Andrews has dealt very adequately with the questions that have been asked. In closing I would like to suggest to anybody who reads the paper through that they should communicate with me, and I shall be only too pleased to collaborate as far as possible with regard to any ideas they may have. That is the main object of the paper, to stimulate as much as possible amongst tramway men ideas which will be of benefit in the future design of the tramcar.

On the motion of the Chairman, a hearty vote of thanks was accorded the authors and the meeting closed.

THE SOCIAL SIDE OF THE CONGRESS.

Luncheons by Hastings Corporation and the Hastings Tramways Company.

On Thursday, June 12, the Association was entertained to luncheon at the Queen's Hotel by the Mayor and Corporation of Hastings, and on the following day (Friday, June 13), the Hastings Tramways Company entertained the Association and the Mayor of Hastings to luncheon at the White Rock Pavilion. In both cases the speeches were brief and humorous. Perhaps the only serious note struck was by Sir John Timpson, K.B.E., Chairman of the Portsmouth Corporation Tramways Committee who, responding to the toast of " Our Guests " at the luncheon given by the Hastings Tramways Co., emphasised the importance and value of such conferences in enabling tramway managers to improve their undertakings as the result of the interchange of thought and opinions. In spite of the criticisms often made by some people to the effect that such conferences are a waste of time and money, and were merely outings for those who attended them, he contended that the tramway and transport undertakings of the country had benefited enormously as the result of these and similar conferences.

The Annual Dinner of the Association.

The annual dinner was held at the Queen's Hotel, Hastings, on Friday, June 13. The President (The Hon. Sir Arthur Stanley, K.B.E., M.V.O., C.B.), was in the chair.

After the loyal toasts had been duly honoured,

The President said : It is always very sad on a festive occasion like this to have to introduce a note of sorrow, but news has come through this evening, as you know, that a very gallant gentleman has passed away in an effort to uphold the honour and glory of England and British sportsmanship. Sir Henry Segrave was known to many of us here. I had the honour of knowing him very well, and all of you who did know him feel that to know him was to love him. We share the deepest regret at what has occurred to-day, and I would ask you to stand for a moment in sympathy and in deepest condolence with Lady Segrave.

All present then stood in silence for a few moments.

The President then proposed " Our Guests : the Mayor and Corporation of Hastings and the Hastings Tramways Co." He said he had found it impossible to be in Hastings during the earlier part of the conference, but from all sides he had heard what he usually heard at the end of a conference, viz., that it had been the best conference the Association had ever held and that the town in which it was held was the nicest place they had ever visited. He was certain, however, that on the present occasion this could truly be said. The Association had received the most royal hospitality in Hastings and he regretted very much that he had not been able to share in it. He also gathered that there had been some excellent papers and discussions at the conference, and also speeches at the luncheon given by the Hastings Corporation. He also gathered that on that occasion there had been one of the best speeches ever made by a Mayor. There were a good many present who knew the Association in its early days. Nobody then thought the Association would rise to the dignity of being entertained by the Mayor and Corporation of a town like Hastings. He had to couple the toast with the names of the Mayor of Hastings and Mr. W. Vincent Edwards, the general manager of the Hastings Tramways Co., but there was also one present whose name he must also mention, although it was a little invidious to mention names on such an occasion as this. He referred, however, to his old friend and faithful helper and supporter of the Association, Mr. Fell, whom they were all heartily glad to see present. He (the President) was always glad to preside over a ceremony of this kind—because it showed that tramways, in spite of the fact that the Association had added to its name, in order to bring in other interests, were still very much alive. For a good many years it had not been customary for much good to be said of tramways. Indeed some operators, as in Hastings, had taken refuge in trolleybuses. Probably that was one of the reasons why it was decided to hold the meeting of the Association in Hastings. After all, it was amusing to go to a place where a thing had been done which others were going to do so that they could benefit by the mistakes of the other man, but the only bother about coming to Hastings was, so he had been told, that Mr. Edwards had not made any mistakes ! so that apparently they would not learn anything. At the same time, he liked to think that tramways were not without friends. This, however, was not the occasion to make a speech about tramways, and he would thank the Corporation and the Hastings Tramways Co. for their great kindness and hospitality to the Association during its stay in Hastings. As to Mr. Edwards, the general manager of the Hastings Tramways Co. it must be said that he was a pioneer who was showing the way by which others hoped to profit. It was a great tribute to him that because of what he was doing in Hastings there were assembled delegates to the conference from all over the world. There were distinguished visitors from Bombay and from South America, and he hoped those delegates would remember, when they went back, that we in England make the best possible tramway material in the world.

The toast was received with enthusiasm.

His Worship The Mayor of Hastings (Mr. Russell Davies, K.C.) acknowledged the toast in a humorous speech in which he reported that all those attending the conference had behaved themselves, at any rate to the extent that they had not been found out ! Speaking seriously, he said it had been a pleasure to welcome the Association to Hastings, and he had no hesitation in saying—and he did not say that at every conference held in Hastings—that from the point of view of friendliness and geniality, he had not yet attended a conference which he had enjoyed more. That was the impression left on his mind and he hoped the impression which Hastings had left on the minds of those attending the conference had been an equally happy one.

Mr. W. Vincent Edwards, who also replied, referred to the now well-known advertisement of an oil company depicting a working

Digitized by Google

man looking both ways at the same time and saying "Crikey," and declared that it really had its background on the Hastings front and that the man's amazement was caused by the speed of the Hastings trolleybuses. He also suggested that people should come to watch the trolleybuses first going one way and then the other. The constant movement of the neck to keep pace with the vehicles was a splendid neck slimming exercise.

Mr. E. H. Edwardes (chairman of Council) proposed the toast of "The Chairman." He assured the President that the members were very proud of him and of the wonderful work he was doing in so many directions. There was only one thing in the world which Sir Arthur Stanley thought about, and that was other people. They were all extremely pleased that he had been able to be present that evening.

The Chairman responding to the toast, said that at any rate as a result of the dinner he would be able to avoid the confusion that always arose when referring to Mr. Vincent Edwards and Mr. Edwardes. Mr. Vincent Edwards would henceforth be known as "Crikey" Edwards. Before concluding, he said it would not be right if he did not mention their excellent Secretary, Mr. de Turckheim, who always put him under a promise not to call upon him to speak at these dinners.

Mr. de Turckheim briefly responded.

After dinner, there was dancing until a late hour.

BERLIN'S TRANSPORT SYSTEM.

Report by a Glasgow Deputation.

A deputation from Glasgow Corporation recently visited Berlin to investigate the transport system, and has issued an attractively produced report giving valuable information and impressions. From it we extract the information below.

Up to November, 1928, Berlin transport was in the hands of three operating companies. In that month it was proposed to liquidate the three and establish one uniform company, known as Berlin Traffic Co., with a capital of £20,000,000. The municipality, however, for some years had been acquiring a controlling financial interest in the three companies, and the last step was to get the balance of the shares, when the city became sole proprietor of the trams, omnibuses, and elevated and underground railways, uniting them under one control.

The system of management was changed in January, 1929, and is somewhat peculiar. Like other city departments, transport is controlled by a special board of 18 members, management being vested in five members, who have charge of departments—commercial, traffic, technical, staff, and construction. There is no general manager of the undertaking, an admitted weakness which the president of the Board, Herr Reuter, states will have to be considered.

The company pays a traffic tax of 6 per cent. of the value of all tickets issued, general industrial taxation, and 10 per cent. of the gross revenue to the municipality. In 1927, the latest available report, the taxes for the tramways section were only partly paid, and the balance carried forward to the credit of the municipality. Sums which should have been paid were used for extension of lines, increase in rolling stock, etc., and for this purpose a loan of 25 million marks had been promised in the last year.

The Traffic Board at the present time are not making sufficient to pay interest guaranteed by the municipality. To try and remedy this, fares have recently been raised, but the number of passengers has declined and there is a drop in the revenue.

The Tramways.

In the year 1927 the total number of tramway passengers was 834 millions. The total mileage was 159 million car kilometres. There was a general speeding up of the service which increased the average speed per hour from 14.2 to 15.7 kilometres. Of rolling stock there were 1,250 driving cars, 1,761 trailers, and 194 trailers for goods, besides auxiliary vehicles. In that year most of the cars for passenger service were equipped with electric heating, and electric points controls were introduced at eight additional points, tramcars being heated during the year on 65 days.

The deputation states that monthly tickets are popular in Berlin, but these are not issued to omnibus travellers, as they are not profitable, although the company has to give them on the cars.

There are very efficient training schools for both tramway and omnibus drivers, thoroughness being the keynote throughout the course. The system is described in some detail. As in Glasgow, all men in the tramway section start as conductors, and in Berlin they act in that capacity for at least six months before being sent to the training school, whereas in Glasgow the period as conductor varies from 12 to 18 months or more. The school equipment is very elaborate, and in addition to the usual physical tests there are unique psychic experiments, to ascertain the quickness of reaction of the hands, body and brain to sudden and unexpected situations. This training accustoms the men, before going on the road, to cope with unexpected and sudden emergencies. In Glasgow, the deputation points out, training is not nearly so extensive as in Berlin. The Glasgow view is that in mechanical and electrical matters men should be given some knowledge of the effects of their actions, but not so much as will encourage them to tinker with the equipment in the event of anything going wrong. In such cases Glasgow instructions are to have the car removed with all despatch to the depot.

A special film called "Politeness" is used to demonstrate the right and wrong ways of dealing with the public and the service generally, and the effects of politeness are indicated by pictures.

Omnibus Section.

In the omnibus section the latest available report is for 1928. In that year traffic increased by 28.6 per cent., largely due to the introduction of the 30-Pf. transfer, permitting a passenger to change once, from the omnibus to the tramcar, or high or low-level railways, or to the third-class section on the State railways. The total number of passengers was 220,367,696, and the number of omnibuses at the end of the year was 620. The six-wheel or three-axle vehicle is preferred on account of its greater passenger-carrying capacity. A two-axle omnibus was built with pneumatic tyres and fore-wheel drive. This was shown for the first time on anniversary day, June 25, 1929, and afterwards put in service with satisfactory results. A second trial carriage of the same construction was sold to the London General Omnibus Company, "who wanted it very much."

Underground and Elevated Railways.

These railways were taken over by the municipality on January 1, 1929. A copy of the business report for 1928 was supplied to the deputation, this year marking the close of 32 years' working. The extension of the transfer system between omnibuses and tubes resulted in a large increase in traffic. About 140 millions, or 52.81 per cent. of all journeys were transfers. Including this traffic, the daily average of passengers was about seven and a quarter millions. The deputation gives particulars of the rolling stock and mileage.

General Notes and Impressions.

Under this heading the report states that the Berliners were early in the omnibus movement, and while they have kept abreast of modern improvements they have still some rolling stock in service which would scarcely meet with the approval of citizens of Glasgow. Treptow garage, Berlin, is the best and most thoroughly-equipped which the Glasgow officials have yet seen, being remarkable for a great span of 850 ft., and the entire absence of pillars in its construction. At the entrance lights are set into the side pillars of the gateway to guide drivers in centring the omnibuses, and the gate pillars are covered with a rounded mass of concrete at the base, which effectively prevents collision with and damage to the entrance. The depot provides accommodation for 180-200 vehicles. The cleaning is done by women, and the time taken to wash and clean an omnibus is 3½ minutes.

Experiments were tried with crude oil engines for omnibuses, but the smell was so offensive that further trials have been suspended.

There is no doubt, concludes the report, that money is scarce in Berlin. Many extensions are being made to the underground lines and it is difficult to see where the money for continuing this work is to come from.

Visit to Leipzig.

A visit was paid to Leipzig on February 12, where they were particularly interested in the complete change over from the trolley wheel to the pantograph and plate. The 284 kilometres of overhead line was altered to suit the new method of contact in six months. The fresh plates were substituted 17 months ago and not a single plate had had to be renewed. Details are given of the rolling stock and other information. The speed of cars is 15 miles per hour, and average speed, including stops, is 9.75 M.P.H.

Leipzig municipality operates post and stage omnibuses, long-distance vehicles connecting places like Leipzig and Dresden, covering distances up to 60 miles. All long-distance services belong to the State, and all local services to the municipality. Drivers and conductors work eight hours per day, and their wages are practically the same, namely, about 53s. per week.

The general manager is elected by the municipality, and if he feels aggrieved at any decision of his committee he can appeal to the council.

The report is illustrated with numerous photographs, and the deputation express appreciation of the cordiality and helpfulness of all those with whom they came in contact. The members were Councillor P. J. Dollan, convener of the Transport Committee, Mr. L. Mackinnon, general manager of tramways, and Mr. R. F. Smith, traffic superintendent.

Digitized by Google

NEW GENERAL MANAGER OF THE LONDON COUNTY COUNCIL TRAMWAYS.

APPOINTMENT OF MR. T. E. THOMAS.

Mr. Theodore Eastway Thomas, the traffic manager of the London County Council Tramways, who on July 1, 1930, succeeds Mr. J. K. Bruce as general manager of the undertaking, has served with distinction in the traffic management and development of both tramway and omnibus undertakings. His chief characteristics may be described in two words—knowledge and adaptability. He has shown other qualifications required for filling successfully positions entailing great responsibility. Those positions have in two instances embraced an aim somewhat in advance of the ordinary conception of traffic work, namely, development. This task was a leading feature of his work both with the Underground Group and with the L.C.C. tramways prior to his present promotion.

Of the manner in which he acquitted himself, no better testimony could be desired than was given by the General Purposes Committee of the County Council in recommending that he be appointed general manager. "We are unanimously of opinion," said the Committee, "that Mr. T. E. Thomas, traffic manager in the tramways department, should be promoted to be general manager of the tramways. We feel confident that Mr. Thomas will prove a worthy successor to Mr. Bruce." The importance of that statement will be best appreciated when the reader recalls the work which Mr. Bruce has accomplished, with the whole-hearted support of the staff and employees, in giving the undertaking a reputation for speed and comfort that is not to be excelled in the United Kingdom, while the financial position has also been transformed. The full story of this achievement was told in the issue of THE TRAMWAY AND RAILWAY WORLD of May 15.

Mr. Thomas, who is now 48 years of age, was born in Clapham, then a newly-developing suburb, which with Tooting was provided in 1903 with the first electric tramway route in the County of London. By virtue of a scholarship won at a secondary school, Mr. Thomas received the greater part of his education at Battersea Grammar School. In 1899 he entered the drawing office of the London United Tramways Co. Two years later he went out on the road to engage in electrification work under the late Sir Clifton Robinson, the managing director. On the completion of the track and overhead construction works on the Surrey side of the Thames, Mr. Thomas was appointed resident district engineer.

In 1910, the London United Tramways Co. was absorbed by the Underground Group, and Mr. Thomas went to the head office at Electric Railway House, St. James's Park Station, where he was engaged in publicity and traffic work for the Group. On the absorption of the London General Omnibus Co. by the Underground Group in 1912—13, he became a commercial assistant of the Group, dealing with fares, routes, etc. At that time the L.G.O.C. was placing a large number of omnibuses on the roads, and it was part of the commercial assistant's duty to arrange the routes. Subsequently Mr. Thomas was assistant to Mr. (now Sir Herbert) Blain, then managing director of the Underground Electric Railways, and the London General Omnibus Co. After a year in that capacity he returned to the commercial side as commercial superintendent. In 1917, he was selected from thirty-eight candidates for appointment to the new position of development superintendent in the traffic branch of the London County Council's tramways.

Eight years were spent as development superintendent and then, in 1925, Mr. Thomas was appointed traffic manager in succession to Mr. Bruce, when that gentleman became general manager. For nearly two years of the five years that have elapsed, Mr. Thomas acted as deputy for Mr. Bruce in consequence of the illness that has now brought about his retirement. From a salary of £1,800 per annum, Mr. Thomas now advances to £2,000 per annum, rising after four years at that remuneration to £3,000 a year by annual increments of £250.

Mr. Thomas is a foundation member of the Institute of Transport, and until recently he was for three years a member of the Council of the Tramways, Light Railways and Transport Association. In 1927 he was awarded the gold medal of the Institute of Transport for a paper on "The Commercial Aspect of Local Passenger Transport." As a believer in encouraging young men, he once read a paper to the London Graduates of the Institute. It bore no title, and the author's object was to provoke discussion. "The eminent men in our profession," he said in conclusion, "are not those with the greatest knowledge, but those who have the readiest access to it, and can most speedily weigh opposing facts."

WOLVERHAMPTON AND THE PENNY FARE.—At a meeting of Wolverhampton Town Council, the Mayor, referring to the prosperity of the transport undertaking, said that next year they hoped to introduce a minimum penny fare instead of the present 1½d.

TRAMWAY AND LIGHT RAILWAY NOTES.

BELFAST.

POPULARISING BELLE VUE.

Belfast Tramways Committee has arranged a series of entertainments at Belle Vue, the Tramway Park. Special provision is made for entertaining children, who will be brought to and from the gardens at reduced fares. Mr. Wm. Chamberlain, general manager, has been authorised to secure the services of popular entertainers and of a golf expert. Belle Vue is regarded as a revenue-earning medium, and it is increasing in popularity.

BRIGHTON.

A SUGGESTION BY THE MANAGER.

In his report for the year ended March 31, Mr. W. Marsh, engineer and manager of the Brighton Corporation Tramways, suggests that in view of the substantial profits now being made the majority of passengers would prefer reduced fares instead of seeing income tax paid on these profits. He states that a universal penny fare is well within sight. A return to pre-war fares would be a step, and this could be done before next winter and still leave a considerable sum in relief of the rates. Mr. Marsh, who has been in his present position for 25 years, is to be congratulated on the consistent and increasing profits made by the undertaking.

COVENTRY.

TRANSPORT DEPARTMENT'S NEW OFFICES.

The new general and traffic offices of the Coventry Corporation Transport Department are now open. The building comprises six rooms on the ground floor, seven on the first floor, with a total floor space of 1,134 sq. ft. At the opening ceremony, Mr. O. M. Flinn, chairman of the Transport Committee, said that the undertaking had grown rapidly. In the first year of the Corporation's working of the tramways the traffic receipts were only £30,000, but last year the total from cars and omnibuses exceeded £200,000. In 1912 the employees numbered 230; to-day 485. The Mayor (Alderman Fred Lee), who performed the inaugural ceremony, said they were going to make the tramways as efficient as possible. Last year, after paying the capital charges amounting to £40,000, they had £5,000 left.

LEEDS.

NEW CARS TO BE PROVIDED.

The Tramways Committee has directed that specifications be prepared for 100 new cars to be supplied over a period of two years.

LIVERPOOL.

TRAMWAY WORKERS' WAGES.

The Industrial Court has given its decision regarding the application of various classes of Liverpool tramway workers for wage increases. The engineers, who asked for an advance of 10s. weekly, are awarded 1s. 6d., and advances are given to inspectors, pitmen, and handymen. The Court decided that the restoration of 4s. deducted in 1922 from drivers, conductors, and cleaners is not warranted.

LONDON.

NEW CARS FOR LEYTON—L.C.C. NEW GENERAL MANAGER—USED TICKET RECEPTACLES—A MOTORMAN'S ACHIEVEMENTS—INTERCHANGE STATION AT GOLDERS GREEN—L.C.C. WHITSUN RECORD.

London County Council has approved a supplemental agreement for the continued working of the Leyton Corporation's tramways as part of the Council's system until June 30, 1956. Leyton Corporation is to supply 50 new tramcars, 25 to be ready for service by July 1, 1931, and the remainder a year later. Mr. T. E. Thomas, traffic manager in the tramways department, has been appointed general manager of the London County Council tramways from July 1. Particulars of Mr. Thomas's career appear on another page. The L.C.C. has decided to continue the experimental used-ticket receptacles on service 32. More striking publicity is to be adopted to get better results. Motorman C. J. C. Grantham, of the New Cross depot, has been immune from accident for twelve consecutive years. Motorman T. W. Manley, Holloway depot, has a ten years' record. The Metropolitan Electric Tramways, Ltd., is to construct an interchange station to relieve the confusion which occurs at Golders Green during the rush hours, caused by passengers changing from tramcar to tube, at a cost of approximately £2,000. During the Whitsun holidays the London County Council tramways carried over six million passengers, establishing a new record.

LYTHAM.

TRAMWAYS RE-ORGANISATION.

The Committee of Inquiry appointed to investigate the position of the Lytham St. Annes Tramways has submitted a report to the Town Council. Mr. J. C. Fairchild, borough electrical engineer, was on October 28 appointed temporarily to fill the position of tramways manager. The work of the administration and technical department has been re-organised, and the committee anticipate

Digitized by Google

that the work will be carried out in future at considerably reduced expenditure. The manager has been instructed to carry out only urgent repairs to the permanent way.

SHEFFIELD.

EXTENSION OF ELECTRICITY PLANT—CHEAPER FARES—STUDENTS' SPECIAL FARES—FREE PASSES.

The present plant at the Corporation Electricity Works is insufficient to give an adequate supply for the tramway system, and the Committee has agreed to an extension of sub-stations in Filey Street and Greystones Road. The estimate of costs includes £2,530 for building and £15,820 for plant, mains, and apparatus. On June 1 certain reductions in the tramway fares took place, and it is claimed that the city now has the cheapest service in the country. It is possible to travel on one route 5 miles 381 yards for 1½d., and taking the longest routes across the city, 9 miles 821 yards may be travelled for 3d. This is considered to be cheaper than any other means of regular transport. Mr. A. R. Fearnley, general manager of the tramways and motors, has stated that the Tramways Committee hope that the reduction will bring about increased travel, so that there may be some compensation for the loss of £48,000 a year in revenue expected from the reductions. The Tramways Committee has allowed students attending certain schools and colleges to travel on tramcars when going to and from school or playing fields, on production of a school badge, at the rate of two consecutive 1d. fare stages for ½d. The Committee has now decided to grant the same privilege to students travelling on the circular omnibus route.

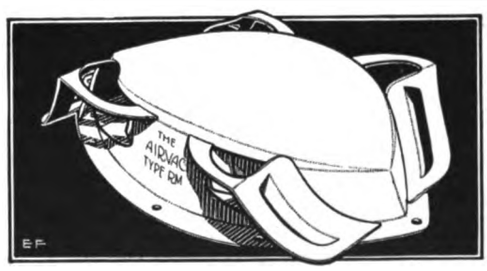
CALCUTTA TRAMWAYS JUBILEE.

This year the Calcutta Tramways Co., Ltd., celebrates its fiftieth anniversary. Referring to this in his speech at the general meeting held in London on June 11, Mr. John G. B. Stone, the chairman, said that the company had not failed during all these years to meet the requirements of the public, nor would they fail to do so in the future.

Discussing omnibus competition, Mr. Stone said that during the last few months there had been a recrudescence in the demand for licences for new omnibuses, these consisting mainly of low capacity double-deck bodies on ordinary commercial truck chassis. Some 800 vehicles had been put on the road since 1922, but there seemed to be only between 350 and 450 plying for hire, so that about 400 have disappeared.

In Calcutta, said Mr. Stone, the authorities appeared determined to persist in a policy which placed no restriction on wasteful competition, thereby increasing congestion in the principal thoroughfares of the city, and, incidentally, discouraging the extension of the tramways into outlying areas. While the company were convinced that the tramway system was best suited to the needs of the bulk of the people, they also realised that the omnibus was necessary to provide feeder and complementary services, and it was for these purposes that their omnibuses were mainly used. To abolish these services would involve the loss of most of the income drawn from their transfer tickets between the omnibuses and the tramcars. They had already made tentative proposals to the Calcutta Corporation which would have meant some move in the direction of co-ordination, but so far these had met with no response.

Mr. Stone paid a tribute to the staff. During the recent troubles in Calcutta the outdoor staff were continually exposed to considerable danger, and with few exceptions all were loyal. The motormen and conductors particularly won the admiration of the people of Calcutta and of the authorities.



WE VENTILATE THE WORLD'S VEHICLES

AIRVAC VENTILATORS
Honeypot Works, DARLINGTON

PERSONAL.

Mr. T. Mensforth, works manager of Darlington Rolling Mills Co., has been appointed electrical engineer to Dorman Long & Co., Ltd.

Mr. T. Hornsby and **Mr. W. M. Teasdale,** both of the L.N.E.R., have joined the board of the Gateshead and District Tramways Co., Ltd.

Mr. H. C. Hazel, of Messrs. Lindsey & Co., Liverpool, has been nominated as next president of the Electrical Contractors' Association.

Mr. J. Barnard, general manager, Bolton Corporation Tramways, has been appointed hon. secretary of the Lancashire and Cheshire Transport Authorities' Council.

Mr. Thos. Rolls, city engineer of Bradford, has been authorised by his committee to attend the meeting of the International Electrotechnical Commission to be held in Sweden in July.

Mr. Norman Rylance, assistant to the traffic superintendent, Bolton Corporation Tramways, has been appointed traffic superintendent of Wigan Tramways at a salary of £300 per annum.

Mr. Cherry, general foreman at the Rotherham Corporation Tramways depot, has been appointed, on twelve months' probation, as rolling stock superintendent at a salary of £300 per annum.

Mr. Albert Gent has been appointed assistant engineer to Reading Corporation Tramways. Mr. Gent has for ten years been with Rawtenstall Corporation Tramways, and was previously with Accrington Tramways.

Mr. H. Nimmo, electrical inspector and adviser to the Government of Burma, has been appointed chief engineering inspector of the Electricity Commission, in succession to Colonel T. C. Ekin, who has retired under the age limit.

Mr. J. Wetherell, borough electrical engineer and manager, Leyton Corporation electricity department, has been granted an increase in salary to the maximum of £1,050 per annum as from July 1 next, instead of on July 1, 1931.

Mr. R. H. Campion, manager of the Torquay Tramways Co., Ltd., has been appointed a member of the Publicity Committee of the Corporation, as representing both the Torquay Tramways Co. and the Devon General Omnibus Co.

Mr. T. H. U. Aldridge, late vice-president and general manager, Shanghai Municipal Electricity Undertaking and the Shanghai Power Company, has arrived in this country. He expects to reside here permanently, his headquarters being in London.

Mr. Douglas Hays, late general manager of the Scottish General Omnibus Company, has been presented with a canteen of cutlery by the employees on the occasion of his leaving to control the group of transport undertakings owned by the Midland Counties Electric Supply Co., Ltd.

Mr. F. Bertram Galer has been appointed chairman of the Highways Committee of the London County Council, which is responsible for the operation of the tramways, in succession to Mr. C. W. Matthews, who has retired from the chairmanship after many years of valuable service to the Council in that capacity.

Superintendent E. Walters, of the Hull Corporation Tramways has been the recipient of a wallet filled with £1 notes, and a bag has been presented to Mrs. Walters. The presentation was made by Alderman R. Mell, chairman of the Tramways Committee, who alluded to Mr. Walters' services to the tramways.

Mr. H. B. Sharpe, deputy manager and rolling-stock engineer, Rotherham Corporation Transport, has been appointed general manager of Morecambe and Heysham Corporation Transport Department, at a salary of £500 a year. There were 107 applicants. On leaving Rotherham Mr. Sharpe was presented with a gold watch by the staff and employees.

Mr. J. R. Walker, senior technical assistant in the electrical branch of the London County Council Tramways, has been promoted to the position of an assistant engineer on the staff of the chief engineer's department of the Council. The appointment is in connection with the increase of staff necessitated by the new public institutions division of the department. The salary is £750 per annum, rising by annual increments of £50 to £900 a year.

Mr. H. G. Godsmark, assistant rolling stock engineer, Nottingham Corporation Tramways, has been appointed assistant manager. He is 33 years of age and went to Nottingham twelve months ago from Manchester, where he had been chief technical assistant in the tramways department. He was there for four years and was previously technical assistant in connection with the London County Council tramways. During the war he served with the Royal Engineers.

L.C.C. Highways Committee.—For the year 1930-31 the Highways Committee of the London County Council has formed the following sub-committees:—Tramways Management Sub-Committee: Major E. H. Coumbe, Messrs. D. Davies, I. J. Hayward, Charles W. Matthews and J. Speakman, and Miss R. Smith. Works and General Purposes Sub-Committee: Mr. C. R. Bennett, Major

Digitized by Google

Coumbe, Messrs. D. Davies, F. Leigh Pollit, J. Speakman and H. A. Wilmot. Each sub-committee has also ex-officio members.

The King's Birthday Honours.—The list of honours conferred by the King on his sixty-fifth birthday included the following names :— Mr. F. H. Royce, O.B.E., M.I.E.E., founder of Rolls Royce, Ltd., and Mr. Basil Mott, past president of the Institution of Civil Engineers, receive baronetcies. Mr. B. Mott was associated with the construction of the City and South London Railway, the Central London Railway and other public works. Mr. G. R. Dain, M.C., manager of the Calcutta Tramways Company, has been given the C.I.E.

English Electric Company Directors.—The following gentlemen have joined the board of the English Electric Company, viz. : Mr. F. Massingberd Rogers (Greater London and Counties Trust), Sir Edward Hilton Young, P.C., M.P., Mr. Percy Horsfall (Messrs. Lazard Brothers & Co.), and Colonel Wade Hampton Hayes (Chase Securities Corporation). In accordance with the scheme for reorganisation of the capital of the company which was recently adopted by the shareholders, the following directors have resigned, viz. : Sir Charles E. Ellis, Sir John A. F. Aspinall and Colonel Sir John H. Mansell.

Mr. David James, J.P., managing director of Swansea Improvements and Tramways Co., has been presented by the staffs of the company with an electric clock to mark the attainment of his jubilee in the service of the company. Mrs. James was handed a canteen of cutlery. Messrs. Rees Edwards (chief clerk), A. Johnston (electrical engineer, Tramways and Mumbles Railway), and F. L. Lewis (manager, South Wales Transport Co.) made the presentations. In response, Mr. James referred to the loyalty and assistance he had received from the staffs. The *South Wales Post*, in commenting on the anniversary, says that " Mr. James is universally liked for his qualities of courtesy and goodness of heart."

" Underground " Delegation to the U.S.A.—Mr. George J. Shave, engineer and operating manager of the London General Omnibus Co., will read a paper on " London Omnibuses and Other Forms of Passenger Transportation," at the annual convention of the American Electric Railway Association, which will be held at San Francisco from June 23 to 26. Mr. Shave will attend the Convention in the dual capacity of a representative of the Underground Group and a vice-chairman of the Commercial Motor Users' Association. Other representatives of the Group will be Mr. A. A. M. Durrant, assistant superintendent of rolling stock, L.G.O. Co. ; Mr. J. H. Williams, divisional engineer, L.G.O. Co. ; and Mr. L. B. Hewitt, mechanical engineer, Metropolitan Electric, London United, and South Metropolitan Tramways.

Mr. Wm. Grant, general manager of Ayr Corporation Tramways and Omnibuses, has been entertained at a social gathering by the Tramways Social Club in recognition of his completion of 25 years' service as manager. A cabinet gramophone was presented to him, and a wristlet watch to Mrs. Grant. Bailie C. C. Hutchison, convener of the Tramways Committee, presided, and stated that it was all to the credit of the general manager that the undertaking had come out as well as it had done. Mr. J. Browne, traffic superintendent, made the presentation. Mr. Grant, in reply, said that it was 38 years since he first took up electric tramway work, and 36 years since he entered Corporation employment in connection with electric traction at Blackpool. The operating costs at Ayr were the lowest in Great Britain, being 5½d. per car mile before the war and 1s. to-day. Although the halfpenny fare had been discontinued, they gave an average of a mile for a penny, and he knew of no other place which did so.

The late **Mr. Ludwig Breitmeyer,** chairman of Lisbon Electric Tramways, Cape Electric Tramways, and Cape Town Consolidated Tramways & Land Co., and a director of other undertakings, left £939,843 (net £901,186).

We regret to record the death of **Mr. William Gladstone Wylie,** which occurred at his residence in South Shields on May 12 after a long illness. He was chairman of the Tramways Committee from its inception in 1906 until his retirement from the Council in 1927. For several years he acted as chairman of the Joint National Council for the Tramway Industry.

Mr. J. W. Speight, who was until the end of last year managing director and consulting engineer of the Ormskirk Electric Supply Co., Ltd., died on May 26 at Ormskirk. He was 64 years of age. Before going to Ormskirk he was managing director and consulting engineer to Penrith Electric Supply Co., was for six years deputy electrical engineer at Blackpool, and earlier was connected with tramways at Bradford, Shipley, Dundee, West Bromwich and in London.

COMMERCIAL AND TECHNICAL PHOTOGRAPHERS

Specialists to the Motor, Tramway & Railway Industries.

EXPERT OPERATORS ALWAYS AVAILABLE.
CONTRACTS UNDERTAKEN IN ALL PARTS OF THE COUNTRY.

Photographic printing and enlarging, Post Cards, Calendars, etc.
Prices on application.

AIR PHOTOS OF FACTORIES, POWER PLANTS, TRAFFIC, etc.
PICTORIAL AIR VIEWS OF TOWNS IN STOCK FOR GUIDE BOOKS.

AEROFILMS LTD. *Tel:* COLINDALE 6183, 6184.
COLINDALE AVENUE, HENDON, LONDON, N.W.9

THE
Manchester Armature Repair Co. Ltd.
ELECTRICAL ENGINEERS
FORD LANE, PENDLETON, MANCHESTER

Contractors to Leading Tramway Authorities for
ARMATURE COILS
FIELD COILS
COMMUTATORS
For All Types of Tramway Motors

Telephone—**Pendleton 151** *Telegrams*—**" Rewinding Manchester "**

ESTABLISHED 1856

Contractors for more than Half a Century to the principal British, Indian, Colonial and Government Railways &c. &c.

TEARNE & SONS LTD.
BIRMINGHAM
TRANSFERS
For Tramcars, Railway Carriages, &c.
ARMS - MONOGRAMS - LETTERING
Every Description of Inside and Outside Ornamentation, Notices, etc.
Telephone—**Northern 1637** *Telegrams*—**" Tearne, Birmingham "**

Automatic and Curb Point Controllers
Tramway & Traffic Signals
Porcelain Insulators and Fittings

THE
FOREST CITY ELECTRIC CO., LTD.,
4, Longford Road, Stretford,
MANCHESTER.

Digitized by Google

Leather Upholstery

Unsurpassed for

Public Service Vehicles

1 Economy & Service.

Low cost and capacity to stand hard wear.

2 Clean & Sanitary.

There is nothing to equal it.

3 Appearance & Comfort.

Refined and cheerful.

JOHN T. HART & SONS,
Grange Road,
BERMONDSEY,
LONDON, S.E.

There is no better leather obtainable.

Write for patterns and quotations and all particulars.

CONTRACTS AND ORDERS.

Oldham Corporation has accepted the tender of Edgar Allen and Co., Ltd., for the supply of track work.

Portsmouth Tramways Committee has accepted the tender of Hadfields, Ltd., for supplying trackwork.

Dorman, Long & Co., Ltd., are to supply 106 tons of rails to Croydon Corporation at £10 16s. 3d. per ton.

South Shields Tramways Committee has purchased 50 tons of tramway rails at £9 16s. 9d. per ton, from Dorman, Long & Co., Ltd.

British Insulated Cables, Ltd., are supplying two miles of trolley copper wire at £99 6s. 8d. per mile to Rotherham Transport Committee.

Grimsby Corporation has accepted the tender of Forest City Electric Co., Ltd., Manchester, for the supply of traffic control signals at £458.

Plymouth Corporation has accepted the following tenders: Edgar Allen & Co., Ltd., for tramway points; Titan Trackwork Co., Ltd., crossings.

Halifax Tramways Committee has accepted the tenders of Richard Johnson & Nephew for five miles copper trolley wire and J. Steel and Sons for tramcar springs.

Liverpool Tramways Committee has accepted the tenders of Edgar Allen & Co., Ltd., and the Titan Trackwork Co., Ltd., for the supply of tramway junctions.

Henry Miller & Co., Ltd., have a contract from the South Indian Railway Co., Ltd., for the supply of hydraulic lifting plant required at Madras for demounting electric coach bodies.

The Underground Electric Railways Co. has provisionally ordered electrical equipment for 62 new cars to be supplied by the British Thomson-Houston Co., Ltd., and motors by the General Electric Co., Ltd.

Bradford Corporation has accepted the tender of the English Steel Corporation, Ltd., for the supply of 100 tramcar tyres at £328 2s. 6d., and that of John Crook, Ltd., of Bolton, for the erection of a passenger shelter in Great Moor Street.

Exeter Electricity Committee has accepted the following tenders: British Thomson-Houston Co., Ltd., 3,750 k.w. turbo-alternator, £12,838; Babcock & Wilcox, Ltd., two new boilers, etc., £9,880; Industrial Construction, Ltd., foundation for new plant, £2,185.

Glasgow Tramways Committee has accepted the following tenders: Larch, Watt Torrance & Co., A. & T. Begg, and Mowat & Miller; beech, J. Stewart; yellow cypress, J. S. Dunn & Co.; calculating machines, Merkham Trading Co.; rail filing machine, W. C. Yuille & Co.; degreasing plant, Fox, Ray & Co.; special track work, Hadfields, Ltd.; tramway poles, Stewart & Lloyds, Ltd.

The Central Electricity Board has placed contracts, amounting approximately to £326,000, for works in connection with various schemes, including the following:—(1) For 66 k.v., 33 k.v. and lower voltage transformers in the areas of the North-West England and North Wales and Mid-East England Schemes: With the British Thomson-Houston Co., Brush Electrical Engineering Co., English Electric Co., Ferranti, Ltd., and C. A. Parsons & Co.; (2) For oil filtering and storage equipment for outdoor transforming stations in the area of the Central England Scheme: With Super Centrifugal Engineers, Ltd.

London County Council has accepted the following tenders for the supply of tramway rails and fish-plates: Dorman, Long & Co., Ltd., £53,896 17s. 6d., and Frodingham Iron and Steel Co., Ltd., £7,232 10s.; 100 gear wheels, Metropolitan-Vickers Electrical Co., Ltd.; 100 pinions, Power Plant Co., Ltd.; electrodes, Quasi-Arc Co., Ltd., and Premier Electric Welding Co., Ltd.; mild steel shoe bars, Cargo Fleet Iron Co., Ltd., £4,800; rolled steel axle bars, S. Fox & Co., Ltd., £542; driving wheel centres, John Baker & Bessemer, Ltd., £1,100; plough collector gear, Estler Brothers, £3,538.

Extension of L.C.C. Electric Cables.—The London County Council referred to the Highways Committee the undermentioned tenders for the supply of high and low-tension electric cables and the building up of existing cables, etc., for the tramway service:—

	Amount of Tender.
Standard Telephones and Cables, Ltd.	£46,725 19 0
Johnson & Phillips, Ltd.	48,232 17 3
Callenders' Cable and Construction Co., Ltd.	48,975 15 11
W. T. Henley's Telegraph Works Co., Ltd.	49,171 13 8
Pirelli General Cable Works, Ltd.	50,528 8 6
British Insulated Cables, Ltd.	51,715 11 2
Macintosh Cable Co., Ltd.	51,993 10 7
Metropolitan Cable and Construction Co., Ltd.	Tender incomplete.
Siemens Bros. & Co., Ltd.	Schedule complete, but tender not signed.
W. T. Glover & Co., Ltd.	Schedule complete, but tender not signed.

The Committee reported on May 20 that they had accepted the lowest complete tender, that of the Standard Telephones and Cables, Ltd., amounting to £46,725 19s. Owing to the substantial fall in the price of copper on that date the price was reduced by £4,664, and the tender, as amended, amounted to £42,061 11s. 7d. The cables will be of British manufacture.

Digitized by Google

TRAFFIC RETURNS.

Tramway and Omnibus Undertakings in the United Kingdom.

NAME OF COMPANY OR CORPORATION	1929. WEEKS ENDING May 11	May 18	May 25	June 1	June 8	1930. WEEKS ENDING May 10	May 17	May 24	May 31	June 7	AGGREGATE. Wks.	1930	Increase or Decrease
	£	£	£	£	£	£	£	£	£	£		£	£
Aberdeen Corporation	4,775	4,743	4,841	6,790	8,023	5,410	4,801	4,825	7,519	8,429	19	8,429	+ 406
Ashton-under-Lyne Corporation	1,720	1,724	1,971	1,661	1,634	1,636	1,579	1,596	1,614	1,594	10	16,237	— 769
Ayr Corporation	456	253	537	549	532	461	306	472	590	550	3	1,781	— 155
Barrow Corporation	871	908	1,240	994	852	865	872	879	967	984	10	9,245	— 148
Belfast City	12,276	12,688	12,916	12,965	12,638	12,940	12,907	12,800	13,643	13,524	9½	124,951	+ 7,674
Birkenhead Corporation	4,884	5,031	5,825	4,995	4,941	4,808	5,069	5,038	5,048	5,572	10	49,639	— 642
Birmingham Corporation	40,469	40,549	45,633	41,013	39,989	42,216	43,150	43,103	42,805	46,224	10	433,942	+ 30,120
Blackburn Corporation	1,958	1,964	2,378	1,993	1,978	2,168	2,040	2,167	2,218	2,113	9½	20,287	+ 1,768
Bradford Corporation	14,636	15,275	16,496	14,486	14,603	13,827	14,433	13,934	14,163	14,643	10	138,494	— 8,923
Brighton Corporation	2,196	2,517	2,831	2,360	2,367	2,315	2,405	2,407	2,499	2,873	9½	24,497	+ 1,162
Burnley Corporation	3,659	3,583	4,050	3,575	3,628	3,519	3,424	3,348	3,382	3,360	...	...	...
Burton-on-Trent Corporation	801	817	845	805	818	860	823	805	828	837	10	8,418	— 523
Bury Corporation	2,516	2,637	2,741	2,502	2,332	2,812	2,906	3,021	2,907	3,018	9½	28 993	— 3 762
Cardiff Corporation	7,379	7,627	8,859	7,633	...	7,551	7,305	7,490	7,591	...	8½	67,673	+ 1,170
Chatham and District	991	1,043	1,283	1,159	1,056	1,109	1,071	1,092	1,118	1,142	22	23,962	— 1,067
Chesterfield Corporation	1,871	2,338	1,878	1,799	1,768	1,840	1,889	1,856	1,859	2,395	10	18,524	— 905
Colchester Corporation	523	684	541	518	533	548	574	563	594	731	11	6,167	+ 626
Colne Corporation	678	923	719	654	719	641	667	766	698	878	10	7,439	+ 74
Coventry Corporation	3,684	3,816	4,567	3,517	3,575	3,828	3,823	3,750	3,794	3,912	10	38,830	+ 1,361
Darlington Corporation	964	981	1,043	1,000	971	1,041	1,027	998	1,016	1,052	9½	10,298	+ 871
Derby Corporation	3,037	3,278	3,651	3,112	3,157	3,339	3,316	3,323	3,482	3,404	10	33,036	+ 2,049
Dover Corporation	346	360	441	374	371	318	364	373	384	402	10	3,711	+ 101
Dundee City	4,338	3,018	3,457	3,603	3,519	4,480	2,532	3,415	3,574	3,746	3½	13,268	— 331
East Ham Corporation	2,326	2,326	2,464	2,369	2,279	2,355	2,309	2,306	2,319	2,308	9½	22,597	+ 442
Edinburgh Corporation	17,798	9,255	28,383	18,986	17,694	18,112	11,949	27,098	18,783	19,351	3½	65,233	+ 169
Exeter Corporation	832	851	967	867	860	801	808	813	818	848	10	7,652	— 525
Glasgow Corporation	49,664	50,537	50,409	52,579	49,857	53,546	48,614	53,823	48,743	55,165	1	55,165	- 5,308
Gloucester Corporation	496	518	673	560	583	685	669	661	676	695	9½	6,399	- 1,361
Grimsby Corporation	1,324	1,310	1,562	1,325	1,314	1,479	1,473	1,442	1,449	1,520	10	14,650	+ 1,676
Halifax Corporation	4,617	5,795	4,519	4,485	4,458	4,991	5,066	5,060	5,096	6,252	10½	52,973	+ 5,856
Huddersfield Corporation	6,303	6,357	7,808	6,300	6,270	5,943	6,072	6,152	6,190	6,251	10	62,664	— 2,564
Hull Corporation	7,514	7,113	7,528	7,144	7,091	7,380	7,214	7,115	7,142	7,121	10	71,125	— 532
Ilford Corporation	1,473	1,465	1,582	1,485	1,469	1,525	1,495	1,529	1,532	1,541	9½	14,836	+ 438
Ipswich Corporation Trolley Buses	1,221	1,235	1,422	1,248	1,231	1,279	1,238	1,291	1,282	1,353	9½	12 698	+ 652
Isle of Thanet	466	525	989	719	688	489	477	544	556	634	22	9,626	— 730
Kilmarnock Corporation	469	233	697	475	448	472	202	671	476	474	3½	1,622	-
Leeds Corporation	19,644	19,490	22,327	19,755	19,446	19,716	19,687	20,075	20,634	20,397	9½	194,697	- 4,571
Leicester Corporation	8,325	8,498	8,897	8,431	8,433	8,613	8,319	8,380	8,673	8,786	10	82,641	— 1,868
Lincoln Corporation Buses	875	949	1,049	910	919	876	883	881	912	970	10	9,116	— 29
Liverpool Corporation	29,719	29,945	32,475	30,628	29,329	30,150	29,642	30,033	30,315	30,562	9½	293,354	- 3,064
London County Council	82,413	83,081	88,087	83,866	83,248	83,655	82,614	82,762	83,281	84,110	9½	772,765	— 4,297
Luton Corporation	374	387	448	430	404	426	402	412	413	425	9½	4,026	- 258
Maidstone Corporation	722	764	872	781	749	843	809	824	821	833	9½	8,605	- 594
Manchester Corporation	41,033	40,737	40,750	40,501	39,909	41,457	40,570	41,269	42,034	41,695	10	399,479	— 8,241
Middlesbrough Corporation	1,563	1,721	1,638	1,586	1,591	1,567	1,561	1,521	1,616	1,752	10½	16,601	— 37
Newcastle-on-Tyne Corporation	11,421	12,506	13,243	12,176	12,076	10,959	11,002	11,239	11,233	11,488	9½	110,142	— 3,276
Newport Corporation	2,404	2,478	2,840	2,431	...	2,378	2,325	2,363	2,322	...	9	21,496	- 214
Northampton Corporation	1,718	1,718	2,008	1,820	1,703	1,902	1,805	1,759	2,069	1,863	9½	17,667	- 668
Nottingham Corporation	9,280	10,807	9,253	9,464	9,591	10,136	10,385	10,312	10,212	11,250	10½	107,399	+ 8,223
Oldham Corporation	5,733	5,677	5,956	5,375	5,401	5,595	5,360	5,282	5,328	5,428	11	59,023	— 2,793
Plymouth Corporation	5,405	5,539	5,667	5,681	5,368	5,785	5,754	5,597	5,710	6,111	9½	58,101	+ 4,077
Portsmouth Corporation	5,304	5,755	7,888	6,033	5,622	6,512	6,453	6,429	6,872	7,417	10	66,497	+ 8,334
Preston Corporation	2,229	2,201	2,594	2,174	2,157	2,143	2,118	2,157	2,158	2,419	9½	20,139	— 685
Rawtenstall Corporation	1,429	1,442	1,423	1,399	1,385	1,418	1,420	1,420	1,366	1,321	9½	13,760	— 95
Reading Corporation	2,359	2,345	2,820	2,531	2,331	2,353	2,373	2,312	2,370	2,740	10	22,798	+ 302
Rochdale Corporation	4,464	4,555	5,251	4,650	4,315	4,299	4,086	4,139	4,237	4,786	...	42,787	— 2,070
Rotherham Corporation	2,572	2,903	3,051	2,610	2,541	2,647	2,618	2,720	2,763	2,936	10	28,107	+ 1,504
Salford Corporation	11,240	11,546	12,000	10,871	10,930	11,159	11,260	11,383	11,311	11,674	9½	112,116	+ 2,023
Sheffield Corporation	20,737	20,563	23,375	20,599	20,513	20,573	20,398	20,771	20,887	19,974	9½	207,458	— 296
Southampton Corporation	3,751	3,960	4,741	4,253	4,552	4,270	4,120	4,084	4,261	4,296	10	39,366	+ 1,588
Southend-on-Sea Corporation	2,006	2,861	2,315	2,198	2,305	2,056	2,120	2,114	2,220	3,242	10½	23,350	+ 576
Southport Corporation	1,561	1,653	2,344	1,825	1,586	1,607	1,547	1,624	1,595	1,669	9½	16 079	— 190
St. Helens Corporation	1,931	1,854	2,307	1,930	1,869	1,953	1,906	2,010	1,970	1,947	9½	18,427	- 1,180
Sunderland Corporation	2,395	2,952	2,623	2,472	2,570	2,770	2,856	2,797	2,967	3,737	10	29,687	- 5,016
Swindon Corporation	603	675	917	1,081	669	972	923	906	978	957	9½	8,948	- 2,166
Wallasey Corporation	3,079	3,300	4,398	3,687	3,250	3,389	3,269	3,303	3,496	3,616	9½	32,967	- 854
Walsall Corporation	3,316	3,532	4,257	3,167	3,225	3,453	3,399	3,395	3,333	3,602	10	35,079	+ 720
Walthamstow Corporation	2,298	2,339	2,915	2,540	2,415	2,492	2,433	2,452	2,476	2,496	9½	23,947	— 261
Warrington Corporation	1,350	1,324	1,344	1,305	1,319	1,352	1,359	1,354	1,360	1,378	10	13,812	- 580
West Ham Corporation	5,918	5,962	6,436	5,901	5,872	6,165	6,244	6,184	6,163	6,256	9½	58,503	+ 1,310
Wolverhampton Corporation	5,901	6,220	7,981	5,828	5,844	5,817	5,805	5,826	5,742	6,127	10	59,219	— 2,320
York Corporation	1,362	1,538	1,645	1,390	1,415	1,167	1,112	1,724	1,564	1,853	11	16,094	+ 1,577

Underground Electric Railways Company of London, Limited.

NAME OF COMPANY	1929. WEEKS ENDING May 11	May 18	May 25	June 1	June 8	1930. WEEKS ENDING May 10	May 17	May 24	May 31	June 7	AGGREGATE. Wks.	1930	Increase or Decrease
	£	£	£	£	£	£	£	£	£	£		£	£
Underground Rlys. (Common Fund Co.)	286,500	288,500	337,800	301,900	295,600	310,000	306,000	310,500	310,700	319,500	23	6,817,100	+ 452,100
London and Suburban District	41,400	42,100	52,100	45,100	42,900	45,500	45,000	45,500	45,700	46,700	23	990,100	+ 78,800

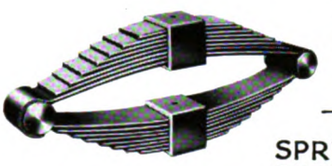
Colonial and Foreign Tramway Traffic Returns.

NAME OF COMPANY OR CORPORATION	1929 WEEKS ENDING May 11	May 18	May 25	June 1	June 8	1930 WEEKS ENDING May 10	May 17	May 24	May 31	June 7	AGGREGATE. Wks.	1930	Increase or Decrease
	£	£	£	£	£	£	£	£	£	£		£	£
Anglo-Argentine	89,370	89,923	80,243	84,309	85,502	83,365	85,669	86,372	81,705	87,146	23	1,941,124	— 81,437
Buenos Aires Lacroze	12,785	12,109	11,624	10,987	10,913	11,498	11,786	11,786	11,087	11,786	49	575,382	— 41,650
Calcutta *Rupees*	125,454	123,963	122,699	119,236	122,024	100,447	103,600	103,771	100,668	100,609	22½	2,615,502	— 296,772
Madras (2 weeks)	44,357	...	42,674	...	45,117	45,842	...	42,494	...	46,216	22	506,455	+ 29,057

	1928. Dec.	Jan.	1929. Feb.	Mar.	April	May	1929. Dec.	1930. Jan.	Feb.	Mar.	April	May	AGGREGATE. Mths.	1929–30	Increase or Decrease
	£	£	£	£	£	£	£	£	£	£	£	£		£	£
Brazilian Trac. $	3,673,543	3,892,833	3,755,709	3,928,550	4,042,145	4,206,895	3,984,311	3,862,089	3,798,698	4,047,036	4,127,492	4,304,160	5	20,139,475	+ 313,343
British Columbia $	1,228,405	1,256,252	1,192,871	1,243 592	1,205,482	...	1,255,522	1,354,314	1,246,551	1,258,375	1,213.993	...	10	12,324,706	+ 575,871
Burma ... Rs	62,582	64,372	63,808	68,993	64,744	66 077	63,485	62,533	63,098	72,758	65,482	66,320	10	643.528	— 22,026
Cape Town ...	32,709	31,777	28,274	30,121	29,244	29,366	30,332	31,036	27,479	30,087	27,500	27,286	...	...	...
Carthagena & H. ...	676	732	972	853	1,063	725	1,314	1,351	1,286	1,003	905	552	5	5,097	+ 752
Durban	26.123	23,916	21,848	24,442	25,603	24,518	25,452	24,577	21,321	23,662	24,002	...	9	214 538	— 141
East India ...	3,670	3,562	3,055	3,892	3,798	3,862	3,721	3,553	3,127	3,863	3,601	3,698	10	37,824	+ 407
Kalgoorlie ...	1,900	1,531	1,433	1,682	1,673	1,747	1,801	1,454	1,437	1,710	...	...	3	4,601	— 45
Para	14,360	14,028	14,007	14,971	15,060	15,182	14,487	14,556	13,628	14,976	15,564	15,568	6	88,779	+ 1,171
Port Elizabeth ...	9,830	9,293	7,478	7,857	7,877	7,601	9,115	9,016	7,110	8,127	7,521	7,552	...	...	...
Rangoon ... Rs.	130,110	116,835	114,300	121,246	120,855	121,040	138,400	155,080	140,130	164,600	148,215	149,440	5	757,465	+ 163,189
Shanghai ... $	321,970	319,220	294,708	339,785	336,624	339,833	345,415	363,400	322,473	377,849	308,840	183,409	5	1,555,971	— 74,199
Singapore ... $	111,000	115,000	117,000	133,000	131,000	133,000	129,000	139,000	128,000	143,000	137,000	148,000	8	1,083,000	+ 123,000
Winnipeg ... $	586,264	607,966	570,895	572,492	536,033	534,954	641,362	628,979	567,569	571,157	516,132	...	4	2,283,837	— 3,549

Digitized by Google

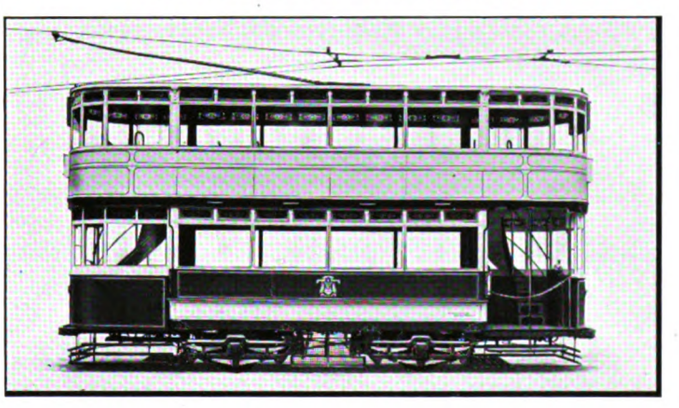
JONAS WOODHEAD & SONS LTD
LEEDS.



ELLIPTIC BODY SPRING

SEMI-ELLIPTIC BODY SPRING

SPRINGS MADE FROM
SILICO MANGANESE STEEL
WELDLESS STEEL HOOPS



MAKERS OF TRAMCAR SPRINGS

AXLEBOX SPRING WITH WELDLESS SOLID EYES

BODY SPRING FOR PRIESTLEY TRUCK. LIVERPOOL TRAMWAYS

LAMINATED SPRING EXPERTS

TELEPHONES
20814
20815
LEEDS

TRADE MARK

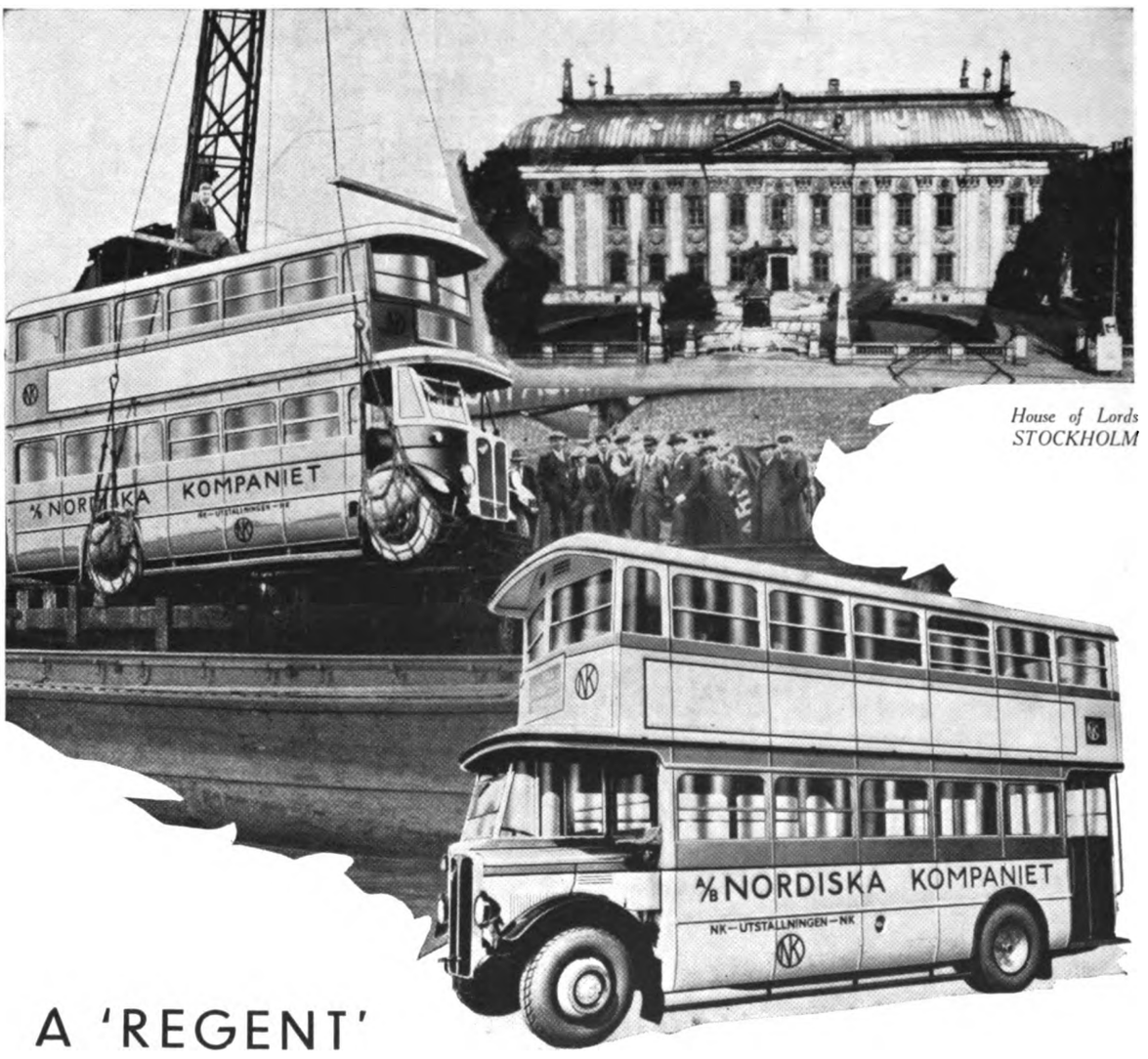
TELEGRAMS
FORGE
LEEDS

LONDON OFFICE:- 17 VICTORIA ST S.W.1. TELEPHONE:- VICTORIA 6423.

Digitized by Google

AEC

REGENT
FOR SWEDEN



House of Lords
STOCKHOLM

A 'REGENT'
(London type) Double Decker recently shipped to Stockholm for operation by the Nordiska Kompaniet

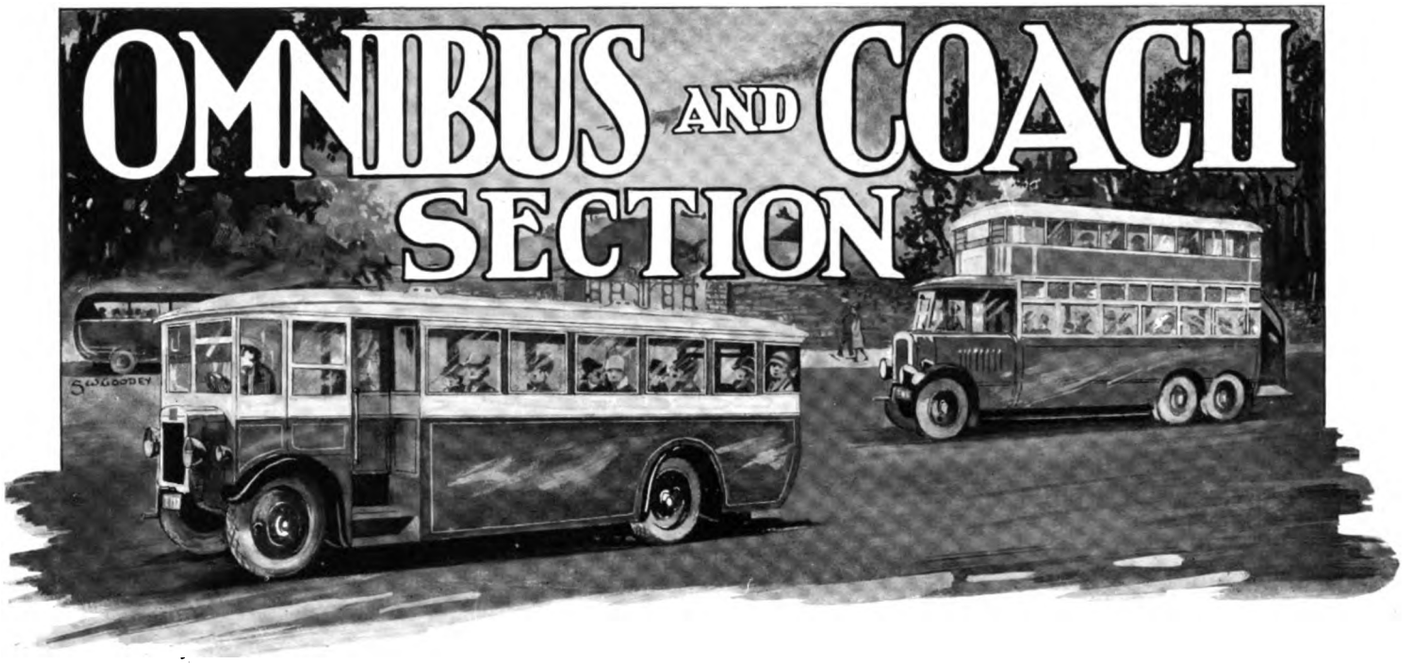
Write for full details and prices:

The Associated Equipment Co. Ltd. Southall Middlesex

BUILDERS OF LONDON'S BUSES

580

Digitized by Google



OMNIBUS AND COACH SECTION—TWENTY-FIFTH YEAR OF PUBLICATION.

NUMBERED AND RESERVED SEATS.

The motor coach appeals to the public by the lure of the open road and the attraction of gliding through the beauties of the countryside. These, however, are not all its chief attractions. Another potent reason is the certainty of securing a comfortable seat without going through the harassing experiences which have been so characteristic of railway termini at holiday times and are still the butt of the humorous journals. Rather than repeat the distress associated with a long wait and finishing with a scrimmage for seats when, if he has not to stand all the way he may have the discomforts of a crowded compartment, the traveller turns with relief to the motor coach. But alas! it is not all unalloyed bliss. Just as the railway passenger prefers the corner seat, so the motor coach passenger not unnaturally desires the seat by the window. But the habit of numbering seats so that early bookers secure their choice seems to have been largely dropped by operators, and there is not a little irritation in consequence. On a long-distance vehicle particularly numbered and reserved seats should be the rule, but passengers complain that although they have booked several weeks ahead they are prevented from getting the seats they rightly consider themselves entitled to by more aggressive travellers who book at the last minute. This being an irritant which they expect to escape they are entitled to consideration, for their enjoyment of the ride is destroyed by a lack of system which they consider can be remedied. The modern coach provides accommodation that is not only comfortable, but luxurious, and it would be a pity to spoil its manifest attractions by a comparatively small defect of organisation. The railways reserve and number their seats on long-distance trains, but a short-distance journey by train is a long one by motor coach. This is a point that should receive the consideration of those operators who do not number and reserve their booked seats. If he is certain of the seat he covets the last grievance of the motor coach passenger would thereby be removed, and late bookers would realise the justice of the method.

OVERSEAS DEMAND FOR OMNIBUSES.

Speaking at the annual meeting of the South African Section of the London Chamber of Commerce, on June 16, Mr. W. R. Cleghorn, the chairman, mentioned that although the demand for private motor cars in the Union seemed to be falling the demand for omnibuses was likely to grow. The latter statement is true, not only of South Africa, but of all the other Dominions and many of our Crown Colonies. Both omnibus and motor coach services are commencing almost everywhere, and railways are loud in their complaints of the loss of revenue brought about by this road competition. It is a matter of vital interest and important to British manufacturers that they should be in touch with these developments, as many of them are, because it is not only the immediate demand for vehicles that is at stake, but the future development of a vast network of road services with all that that implies. Those who participate in the beginning will reap the reward of their enterprise, because the potentialities for business are great. In Australia road construction is opening up new passenger services in the country districts, while town traffic in the various State capitals is growing. The Commonwealth, in its laudable desire to establish and extend its secondary industries, has succeeded in creating a successful body-building industry, while a number of chassis parts and accessories are now produced locally, but everything else has to be imported, as the all-Australia motor is still a long way off. In South Africa development in this respect is not as advanced as it is in Australia, and on the engineering side, at any rate, it will be many years before the Union can produce for itself, even if the projected State steel works are successful. Of the Crown Colonies, West Africa, particularly the Gold Coast and Nigeria, will present smaller, but increasingly valuable opportunities, and developments there should not be neglected, as in recent years there has been remarkable progress in road traffic, and there is a tendency which may before long bring these intensely interesting countries within the scope of enterprising

Digitized by Google

OMNIBUS AND COACH SECTION

tourist companies. There is, therefore, plenty of scope for British firms to expend their public service vehicle business in our overseas territories, which are sympathetic to their advances. At present the Dominions, in common with other parts of the world, are feeling the effects of the economic depression, but they realise that road transport must be not only carried on, but increased, so it is not merely a period of marking time, but of seizing opportunities.

DEMONSTRATION MACHINES AT HASTINGS.

The enterprise of the manufacturers of the omnibus and motor coach was well illustrated at the parade of these vehicles which this year formed a definite part of the official proceedings of the Tramways, Light Railways and Transport Association's congress at Hastings. As the parade included all types of vehicles suitable for public service, from the plainly-fitted service omnibus—one of which had been actually taken out of service for this demonstration—to the most elaborately furnished luxury coach, visitors had an excellent opportunity, not only of inspecting the latest designs of body work, seating arrangements and fittings, but of comparing the outstanding features of the various types. The real value, however, of the demonstration was the running tests which followed the inspection on the parade ground. On the Thursday a run was arranged, taking in Winchelsea and Rye, and on the following day a fifty-mile tour through some of the most beautiful of the Sussex countryside, when a large number of the 270 members and guests who attended the congress tested the riding qualities of the vehicles. On each of these runs the route selected included roads which for gradient, surface condition and width, constituted a very severe test of the power, springing and braking of the vehicles. As each vehicle was able to keep its place in the column throughout the entire journey, and everyone appeared to be well pleased with their experience, it can be taken that the demonstration was well justified and served to show the remarkable progress that has been made in perfecting the passenger-carrying road-motor vehicle, both with regard to reliability and comfort.

DEFECTIVE VEHICLES.

The new regulations of the Ministry of Transport regarding broken-down vehicles is a step in the right direction. In the London area it now becomes an offence for the person responsible for permitting a vehicle to be in such a condition that it breaks down in any street within the traffic area. The suggestion emanated from the London Traffic Advisory Committee and is worthy of much wider application, for although the majority of army surplus vehicles have disappeared, there are still a number of obsolete lorries working in various parts of the country which are a menace to traffic regulation. Many of these are employed in the transport of heavy materials, probably at low rates, and they are often overloaded, and from their appearance give the impression of being run until they break down. Apart from the traffic block which is caused by the actual breakdown of these vehicles, the damage to the roadway and to buildings, on account of excessive vibration, is out of all proportion to their usefulness, so that in the interest of road users, as well as of property owners, it is satisfactory to know that steps will be taken which will tend to reduce the risk of traffic blocks due to broken-down vehicles, and to remove from the road vehicles which are past their efficient life. Another aspect of the new regulations has a bearing on the question of overload. For a long time past it has been a sore point with the operators of passenger vehicles that while the weight of their permissible load has been closely controlled, the owners of goods-carrying vehicles have been left free to overload to any extent, to the danger and inconvenience of all other road users. Under the new order the onus is placed upon the person proceeded against to satisfy the court that he has taken all reasonable steps to prevent overloading.

BETTER VISION FOR DRIVERS.

On the modern omnibus with the enclosed cab the driver has little or nothing to complain of as regards shelter, but improved vision is desirable This is a subject to which Mr. C. L. E. Stewart, general manager of Rawtenstall Tramways and Omnibuses, has given special study, and his conclusions should interest other managers and the body builders. He favours a single-piece fixed wind-screen, set at an angle, its advantages including the prevention of reflections from inside, thus obviating curtains. Dismissing the contention that in a fog it is imperative the wind-screen should be open, Mr. Stewart says that an open screen would add one more tribulation to the driver, but he insists on the need for an effective wiper. Its arm should move completely out of sight when not in use ; it should be capable of being hinged back off the screen while the glass is being cleaned ; it should be operated by hand in an emergency ; and it must be powerful enough to move snow and sleet. For reasons of safety it is undesirable that a driver should have to use a hand wiper, and to be effective a wiper must be moving all the time. Vacuum wipers are not favoured on omnibus screens, and the mechanical wiper operated by a flexible shaft from the propeller shaft would be satisfactory when a speedometer drive is available. The electrical wiper, of a more substantial type than for private cars, is Mr. Stewart's choice, the wiper to be in the upside-down position at the bottom of the screen, this arrangement keeping a clearer screen. Drivers appreciate a fog light, fixed near to the ground, but clear of mud splashes, as it illuminates the near-side kerb ten or fifteen yards ahead, but they prefer a clear glass to a tinted one. The main thing that they desire is a powerful enough light. A 24 C.P. gas-filled lamp is used, and the manager is surprised at the good time kept by the omnibuses in medium fogs, as against the tramcars and the other connecting omnibuses that are not fitted with fog lamps. After trying all anti-dazzle devices the drivers say they would rather be without them, but Mr. Stewart's preference is for the screen type made of a fine gauze. Yet the dazzle nuisance adds to the danger of the road.

Digitized by Google

OMNIBUS DEMONSTRATION

AT THE

Tramways, Light Railways and Transport Congress

An appropriate innovation at the twenty-first annual Congress of the Tramways, Light Railways and Transport Association, which was held at Hastings on June 11-13, was a demonstration of petrol omnibuses and trolleybuses. This event marked the addition of "Transport" to the title of the Association, and the opportunity to participate therein was shared by nearly two dozen firms who are members of the Association.

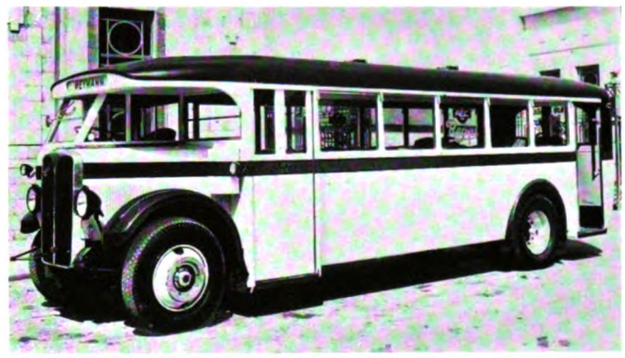
The vehicles were parked in Falaise Road, which divides the Sports Grounds at the rear of White Rock Pavilion, and notwithstanding that in some instances they had come hundreds of miles by road the parade was on the whole very attractive. The only drawback was that time did not permit of the close inspection that many members would like to have given to each vehicle.

Albion Motor Car Co., Ltd.—The "Viking" 32-seat passenger, low-loading saloon omnibus had a body constructed with rear near side entrance, and an emergency exit on the off side behind the driver. A brief description is as follows:—Upholstered in moquette, bound with leather; finished in fabric-covered panels with white enamelled roof; three ventilators in roof and glass louvres to the five drop windows on each side; fittings of the saloon nickel-plated; and fire extinguishers. The six-cylinder engine has a range of from 36 to 90 H.P., with side by side valves. There are three detachable heads. Lubrication is by pressure through a submerged

Albion "Viking Six" 32-seat Omnibus.

pump. The gear box gives four forward speeds and reverse. All gear wheels are ground after hardening, the shafts running in large diameter ball bearings. Power is transmitted by a cardan shaft and Hardy Spicer universal joints. The centre bearing is of ample size and rigidly mounted. The rear axle is worm-driven with underslung worm, the ratio being 6¼ to 1. The front axle, of H section forged steel, has its ends strengthened to withstand the strain of front-wheel brakes. Assisted by servo motor, the foot-brake operates on all four wheels; the hand brake on the rear wheels only. Chassis lubrication is by the group system, but the front axle nipples are single and direct.

Associated Equipment Co., Ltd.—On the new "Regal" chassis, recently described in these columns, was a Weymann body seating 30 passengers amid most comfortable surroundings. Hide is used for the trimming of the special seats, which have cushions and squabs on a lace web basis. The body is built on a patent flexible principle, which enables light-weight materials to be used without sacrifice of strength. From the waist line upwards the exterior is fabric-covered. Beneath the fabric at the corners are sheets of aluminium, which are also used below the waist rail. The silent running of this body is the outstanding feature. On each side are four drop windows of the Rawlings type, and above them are louvre ventilators. Further ventilation is afforded by well-tried devices in the ceiling and the bulkhead. Concerning the engine and chassis it may be repeated that they were evolved to meet the demand for speed with safety, prompt acceleration, trouble-free braking, perfect control in steering and passenger comfort. The six-cylinder engine marks the development of the power unit of the well-known "Reliance" chassis. With a Treasury rating of 37.2 H.P., the maximum of 95 B.H.P. is attained at 2,500 R.P.M. At 1,000 R.P.M. the reading is 48 B.H.P.



Weymann Body on A.E.C. "Regal" Chassis.

Auster, Ltd.—The demonstration vehicle from the Crown Works, Barford Street, Birmingham, was fitted with various examples of the equipment which the firm produces for commercial and pleasure motor vehicles. These comprise wind shields and a wide range of body fittings. Not long since many of the latter were regarded as luxuries, but they are now necessities if a vehicle is to be attractive to passengers by coach or omnibus.

Bristol Tramways & Carriage Co., Ltd.—A "Bristol" 26-seat, all-weather Pullman touring omnibus, mounted on the six-cylinder 4-wheel passenger chassis. The eye was attracted by the fine lines of the body and chassis, and the inviting interior. The wheel-base is 16 ft., and the vehicle has a low-loading line, and among numerous features mention may be made of the most comfortable seating, which gives ample knee room. The seats and cushions are 2 ft. 10¾ in. in width, the cushions being 11 in. deep. Side and centre rests to head rolls are fitted; also detachable covers. The opening three-quarter roof is operated by the driver. The interior is finished in a luxurious manner. Mouldings, fillets and cappings are of

Bristol 26-seat Pullman Touring Coach.

polished grey wood, solid walnut, mahogany or ebony polished as desired. Linoleum is laid to the floor, and carpets to blend with the decorative scheme are in the gangway and between seats. Hat and parcel racks run the entire length of the body. There are two full doors, front and rear, and one for the driver. The windows are arranged to drop. The chassis is for a body not exceeding 30 cwt., to seat 32 persons. The forward driving position with a half-bonnet allows access to details of the engine. Rated at 38.4 H.P., the J. W. type of engine develops 55 B.H.P. at 1,000 and 80 B.H.P. at 2,000 R.P.M.

Digitized by Google

OMNIBUS AND COACH SECTION

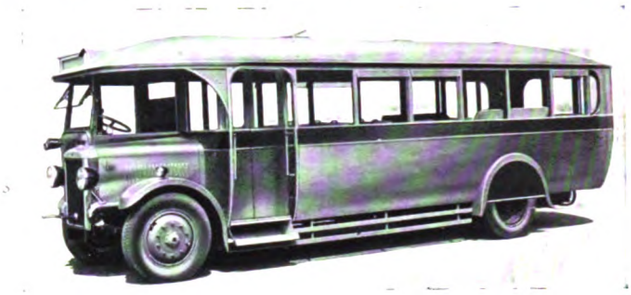
Crossley Motors, Ltd.—Of graceful lines, the 32-seat Crossley saloon omnibus is externally decorated in ivory with fawn waist rail, wings and wheels, the waist mouldings being of polished aluminium. Inside, the low-loading saloon has each side cased in white cellulosed panels and moulded in walnut. The roof is underdrawn, and the drop windows are provided with louvres in addition to the ordinary means of ventilation. The seats, upholstered in moquette, have spring backs with a check plate fitted at the basis of the springs. Entrance is on the rear of the near side. On the off-side is an emergency door. The Crossley 38-110 H.P. engine has

Crossley Saloon Omnibus of 38-110 H.P.

six cylinders, with bore of 4 in. by 5½ in. stroke (capacity 414.7 cubic inches.). There is a seven-bearing crankshaft. Valves are side by side. Engine lubrication is by dry sump. There is forward steering, and the driver's seat is adjustable for height and reach. Other details include four-speed gear-box, under-driven worm axle, four-wheel brakes on the Dewandre-vacuum system operated by foot-pedal, hand brake coupled to separate set of shoes on rear axle, and long flexible springs. The wheel-base is 16 ft. 7½ in.

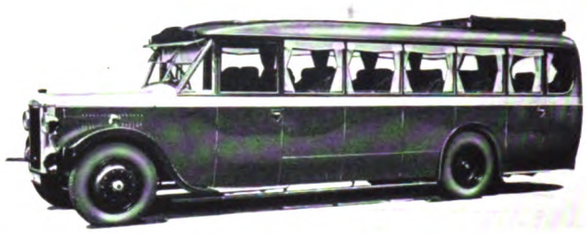
Dennis Brothers, Ltd.—This company's Guildford works were represented by two machines that are in wide request. A 32-seat saloon body was shown on the four-wheel EV chassis. The more recent "Arrow" chassis has a six-cylinder engine, and as the finishing point to its attractiveness it has the elegant new-type radiator.

great strength; other fittings are of a weight-saving description. For instance, the worm gear and differential are in a quickly detachable high tensile aluminium alloy carrier, while the gear-box casing



The Daimler 32-seat Saloon Omnibus.

is made of a similar alloy. Very long and wide springs afford exceptional riding comfort, and the front axle has hydraulic shock absorbers. Power-assisted four-wheel brakes have a single-handle adjustment outside the frame. There is an independent emergency and parking brake. Either a 17 ft. 3⅞ in. or a 16 ft. 3¼ in. wheelbase can be ordered. Similar engine and chassis details are applicable to the other vehicle. The 26-seat sun saloon de luxe coach has



Sun Saloon de Luxe on a Daimler Chassis.

standard drive, and the body is by Duple Bodies and Motors, Ltd. This coach is popular with long-distance operators for its silence and smoothness

32-Seat Omnibus on Dennis E.V. Type Forward Control Chassis.

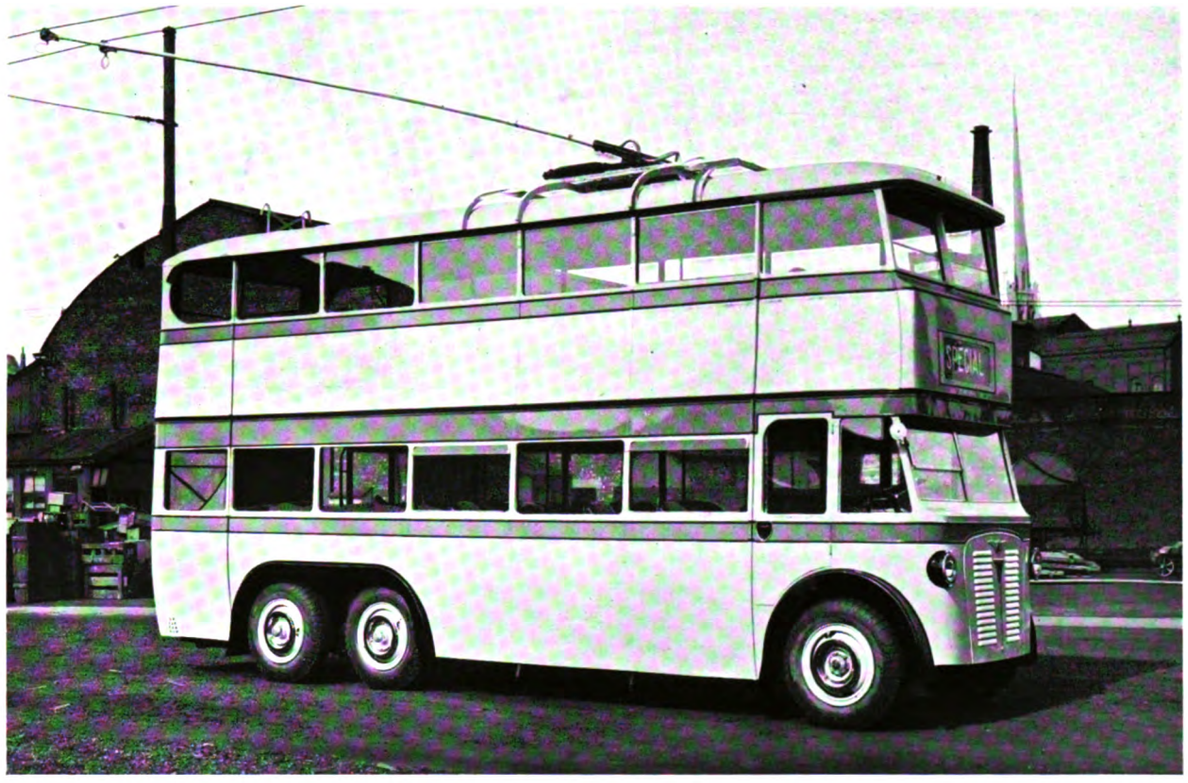
Daimler Company, Ltd.—Exhibits comprised a single-deck omnibus and a sun saloon coach. The 32-seat saloon omnibus is on the CF6 forward drive short wheel-base chassis. A luxury body by Willowbrook, Ltd., has a forward entrance and a rear emergency exit, and is notable for its seating, ventilation and decoration. The six-cylinder engine develops 100 B.H.P. The valves are the Daimler silent steel-sleeve. Axles and parts bearing stress are of

Eastwood and Kenning, Ltd.—This Trafford Park, Manchester, firm, who are successors of Davidson, Ltd., staged a 32-seat four-wheel omnibus belonging to the Lancashire United Power and Traction Co., for which they had constructed a saloon body. The chassis was the Leyland "Lion." The speciality of the body was the sliding roof. Also were included a number of the fittings for which the firm are well-known.

Digitized by Google

OMNIBUS AND COACH SECTION

English Electric Company—A.E.C.—These companies showed one of the two trolleybus exhibits. Known as model 663T, this six-wheeler is one of several which the two organisations are collaborating in placing on the market. These will have as their basis the Associated Equipment Co.'s "Regal," "Regent" (4-wheel) and "Renown" (6-wheel) chassis. The handsome and comfortably appointed 6-wheel vehicle seats 60 passengers on the two decks, all under shelter. The single-armature motor can be wound and rated for either 65 or 80 H.P. as may be required. By means of an automatic device the vehicle accelerates at the best rate without further action by the driver when he has depressed the control pedal. The acceleration obtained is extremely good and smooth. The control of this type of trolleybus is much less complicated from the driver's point of view than that of a petrol vehicle, as he has only two pedals. With the left foot he actuates the master switch (which governs the contactor method of control), with the ease of a motor-car accelerator-pedal. The right foot applies the rheostatic and air brakes. Safe operation is ensured by three systems of braking, namely the Westinghouse air brake on all six wheels, the hand brake on the four rear wheels, and the rheostatic brake. The 26 ft. 9 in. frame enables comfortable knee room to be given in the seating layout. Comfortable riding is assured by spring seats, the front springs of ample length and flexibility with their hydraulic shock absorbers, and the bogie carriage of the rear axles. The floor height when loaded is 24½ in. Fifty-nine feet is the turning circle.



Six-Wheel double-deck Trolleybus Seating 60 Passengers—English Electric Co., Ltd., and Associated Equipment Co., Ltd.

Richard Garrett & Sons, Ltd.—The exhibit of the firm's "O" type 32-passenger trolleybus is one of a repeat order from the Mexborough and Swinton Tramways Co. Its four wheels have giant tyres (twin at rear), and the body has a centre entrance with sliding doors, which has been found to greatly expedite loading and unloading. The Mexborough Co. has had an extensive experience of Garrett trolleybuses, there being twenty-seven of them in service. This example has a 60-H.P. motor of the ventilated double commutator type, and a foot-operated B.T.H. contactor controller. There are eight speeds forward and reverse. Great attention has been given to the braking, a feature of which is the Bull patent electric eddy current brake. Two sets of brakes operate on the rear wheels, one by foot-pedal and the other by hand-lever. The vehicle is well sprung with silico-manganese steel springs, which are underslung. Comfortable semi-bucket seats are by Siddall & Hilton, Ltd., Sowerby Bridge, Yorkshire. Upholstered in leather they add to the attractive appearance of the saloon. Ventilation is by the duct system. The transmission is by a single worm-driven rear axle with ball and roller bearings throughout. For the wheels high tensile steel discs are used, running on roller bearings. The steering has ball-bearings. The wheel base is 14 ft. 10 in.

Gilford Motor Co., Ltd.—A 26-seat Pullman saloon mounted on the 168OT chassis complying with Scotland Yard regulations. The Wycombe saloon has two doors on the near-side and one on the off-side by the driver, with an additional sliding door to the front partition. There is a conductor's seat in the luggage compartment. All seats are in the Wycombe de luxe type with folding tables to the backs, and are covered with York pattern floral moquette, which is also used for the waist panels. The interior finish is in walnut, with blue fabrikoid to the centre of the ceiling and buff fabrikoid to the sides. Safety glass is used throughout. Nearly all the windows drop on the Rawlings cam system. Permanent ventilation is given by two ventilators in the saloon and one in the driver's cabin. There are also louvres to the windows. All timber to the exterior of the cabin and the luggage compartment is metal covered. Lysaght's best silver steel covers the outside of the body from the skirt to the top. These panels have radiused corners to the windows, and are of standard size for interchange. Along each side of the body are lockers for luggage, and there are large parcel nets. "Thermo" heating is provided. The forward control six-

Digitized by Google

OMNIBUS AND COACH SECTION

cylinder engine is rated at 37 H.P., and gives 43 H.P. at 1,000 R.P.M., going up to 100 H.P. at 2,600 R.P.M. It has remarkable flexibility and reserve of power. There is a four-speed gear-box, Dewandre-servo equalised four-wheel brakes, while the fitting of the Gruss air springs for shock absorption gives a remarkable degree of riding comfort.

General Motors, Ltd.—Two small-capacity vehicles were on view. The 20-seat saloon omnibus is on the G.M.C. T30 chassis, and the body allows liberal space for each passenger. The semi-bucket seats have double-sprung cushions and are upholstered in red leather. Entrance is by a one-man operated double door at the front of the near-side. At the rear is an emergency door, which can be opened from both sides. A Chevrolet coach with a six-cylinder engine has an all-weather body which seats 14 to 16 persons. It has the Hemmings all-weather head to the otherwise fixed roof.

Driver's Compartment of the double-deck Trolleybus shown on preceding page.

Guy Motors, Ltd.—Additional interest was attached to this company's exhibit of the 38-H.P. six-cylinder luxury coach because of the fact that they have supplied a fleet of single and double-deck trolleybuses to Hastings. This 30-seater has had several years testing by municipal and company operators, and the present model came through a most severe test in February last. With the equivalent of a load of 32 persons, it easily ascended a 1 in 4¼ gradient, increased its speed from 28 to 40 M.P.H. on another severe hill, accelerated from 0 to 30 M.P.H. on top gear in 18 seconds, and was brought to a standstill from 30 M.P.H. in 4 seconds. The engine has a maximum of 85 H.P. It has the Guy patented valve design and detachable cylinder head, features which are claimed to give the greatest all-round efficiency, as well as enabling the valves, combustion chambers and pistons to be exposed in five minutes for cleaning, Another patent is the flexible sub-frame to carry the engine, clutch and gear-box. Vital working units are thus insulated from stresses of main frame distortion, and no strain is imposed on the crankcase and gear-box arms. Another feature is the fully floating rear axle. The rear springs are underslung. The saloon body has all the aids to comfort that can be desired. In this matter attention has been paid to the driver's cab, whether the vehicle is to be operated as a long-distance coach or as a service omnibus. The wheelbase is 16 ft. 7 in.

Six-Cylinder 30-seat Luxury Coach—Guy Motors, Ltd.

Karrier Motors, Ltd.—As pioneer makers of the rigid six-wheel chassis for passenger transport it was fitting that this company displayed their "Clipper" 40-seat six-wheel omnibus. With a decade's experience of the operation of the six-wheeler they state that when that type is correctly designed and built it has the following advantages over the four-wheeler—improved riding comfort, greater safety, increased carrying capacity, better road-holding qualities and reduced wheel spin, the two latter advantages giving a greatly improved fuel consumption. The "Clipper" has an advanced chassis, which carries the driver in a forward position, and accommodates a single-deck omnibus body wherein comfortable seats can be arranged for 40 passengers and still leave generous standing room for use during rush hours. The entirely new six-cylinder side valve engine embodies only well-tested and accepted principles, and gives useful power and torque curves from low to high-speed range. Its cool running and rapid acceleration are noteworthy. Developing well over 100 H.P. the petrol and oil consumption figures are 8 and 1,200 M.P.G. respectively. The "Clipper" has a low, wide and exceptionaly deep frame, and for a vehicle of this capacity the steering is remarkably light and provides an excellent lock. The

The "Clipper" 40-seat Six-Wheel Omnibus—Karrier Motors, Ltd.

demonstration machine has a body by Park Royal Coachworks Ltd. It has front and rear entrances on the near-side. All seats are of the semi-bucket type covered with moquette. Ample ventilation is given by four roof-ventilators, and drop windows are fitted on each side. Interior equipment includes parcel racks, signal bells and lighting.

Digitized by Google

OMNIBUS AND COACH SECTION

Leyland Motors, Ltd.—The TS.3 " Tiger " saloon for 30 passengers and the TD.1 " Titan " double-decker for 48 persons represent vehicles in wide use, both types being of proven serviceability and comfort. The overall length is 26 ft., wheelbase 16 ft. 6 in., and

" Tiger " Saloon for 30 Passengers—Leyland Motors, Ltd.

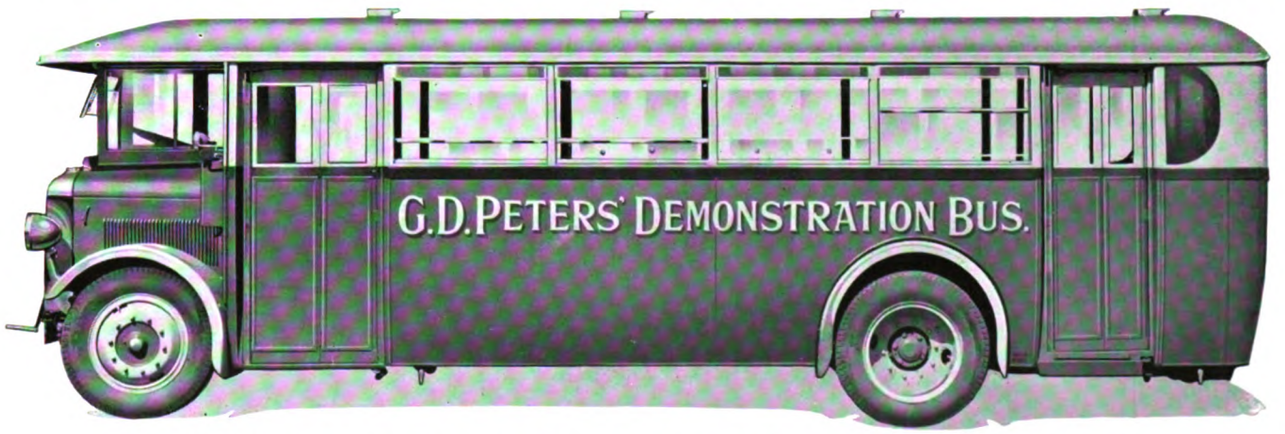
overall height 8 ft. 7 in. laden. The roomy seats are upholstered in hide. Effective ventilation is secured by the uninterrupted circulation of a current of air between the external and internal panels on the body framework. Consequently there are no glass louvres over the windows. The drop windows are arranged so that when closed there is a permanent space between the glass and the body framework. By this means air circulates above the shelves provided in a novel position for parcels between the electric lamps and the roof. Externally the body is panelled in aluminium, and in addition the whole of the framework is metal covered. The interior panelling is of waterproof plywood from the waist rail to the seat rail, and fluted aluminium from the seat rail to the floor. The panelling between the waist and seat rails is covered with rep to match the upholstery, and finished with mahogany mouldings. The patent double-deck body with fully enclosed staircase mounted on the " Titan "chassis accommodates 24 passengers in each saloon. The roof of the lower saloon is built on the " stepped " principle, which reduces the laden height of the vehicle to 13 ft. 1½ in. without interfering with the head room. The step in the roof forms the gangway of the top deck. This vehicle has a similar wheelbase to that of the single-deck omnibus, and the light-weight metal construction is similar.

The makers say that there could not be a cleaner running engine. High thermal efficiency is secured by the combustion chambers being hemispherical and completely machined, consequently the trapping

" Titan " Double-decker for 48 Passengers—Leyland Motors, Ltd.

of unburnt gases is entirely prevented. A 32-seat saloon omnibus has a body by Park Royal Coachworks, a notable production.

G. D. Peters & Co., Ltd.—This company renders valuable service to transport managers with the fittings for omnibuses and coaches that are shown in use on " Our Bus." In the Dodson body on an A.E.C. " Reliance " chassis may be seen in operation some most useful components made by the company for the safety and comfort of the passenger. " Sundeala " millboard, which has an excellent finish, is used for panelling the interior, including the ceiling. It is impervious to moisture and does not shrink or warp. Under ordinary wear and tear it is held to be indestructible. The latest developments in seating, window balancing devices, ventilators and window hoods are used for furnishing the saloon. The omnibus is arranged for one-man operation with doors that are worked by the vacuum available in the induction manifold of the engine. The difficulty of keeping omnibus doors closed whilst running without interfering with the duties of the driver or conductor is overcome by Peters' national pneumatic system. The omnibus has an in-



An A.E.C. Vehicle Replete with G. D. Peters & Co's. fittings for Omnibuses and Coaches.

Maudslay Motor Co., Ltd.—An imposing exhibit was the six-wheel rigid frame Maudslay omnibus built for Coventry Corporation Tramways and Motors. It has a double-deck body constructed by the Brush Electrical Engineering Co., seating 60 passengers. The accommodation is arranged in the two saloons on a plan that provides the maximum room for seats and gangways. Both the interior and exterior are fitted and decorated most attractively. The chassis is the " Magna," which has an engine of six cylinders first introduced in 1927. The flexibility and even torque developed at all service speeds are quoted as making it an ideal power unit for double-deck omnibus operation. The cylinders have a bore of 110mm.; stroke 130 mm. The Treasury rating is 45 H.P. At 1,600 R.P.M. 100 B.H.P. is developed, and the maximum is 120 H.P.

stallation for the electro-vacuum operation of front and rear door arranged for one-man or two-men service. One-door equipment is also obtainable.

Park Royal Coachworks, Ltd.—The successors to Hall Lewis and Co., at Abbey Road, Park Royal, N.W.10, invited attention to their single-deck saloon on a four-wheel chassis. The body repaid inspection inside and outside. It accommodates 32 passengers on temptingly inviting seats, the upholstering being in tapestry pattern moquette, edged with leather at the chief point of wear. The seat backs and lining panels are covered with fabric that does not show scratches. Cappings and polished woodwork are finished in walnut. Ventilation is given by six drop windows on each side, by louvres over the windows, and by Ashanco ventilators in the

Digitized by Google

OMNIBUS AND COACH SECTION

roof. Above the windows are nets for parcels. An under-ceiling to the roof is of polished washable white fabric. Metal fittings are chromium plated, and longitudinal rails are covered in doverite. There is a near-side double-entrance and an emergency exit at the front off-side.

Chas. H. Roe, Ltd.—This Leeds firm exhibited a 32-seat body on a Leyland "Lion" chassis built for Sunderland Corporation. The body is their standard municipal type, with front entrance on the near-side and rear emergency door and folding step. The outstanding features of this body are the patent waist rail and Pillar jointing, the side extractor type of ventilation, patent bar type door gear maintaining the door perfectly rigid in either the closed or open position. The opening windows are the Webber type. Seats are chiefly transverse, having semi-bucket pleated backs and are trimmed out in real cowhide leather. The interior finish is in black walnut. The floor is fitted with a series of interlocking trap doors (which can all be removed to give access to all parts of the chassis) and is covered with jazz rubber sheeting.

Short Brothers (Rochester and Bedford), Ltd.—A light-weight single-deck saloon was shown on the Tilling-Stevens B10A2 chassis. Both internally and externally the body is an artistic production, seating 31 persons. The cushions are approximately 7 in. deep at the front edge, and are fitted with clip type spring cases, upholstered in moquette with bordered edges. A feature of the 26 in. body is that it gives headroom of 6 ft. 3 in. to the gangway. From waist to seat rails the saloon is panelled in plywood. Polished mahogany mouldings cover the joints. The roof interior is treated in white enamel. Bevelled mirrors are fitted to the front bulkhead. Three drop windows on each side have the Beatonson mechanism, the channels being felt-lined. Ventilation is independently provided for by two hinged ventilators in the roof and two in the front bulkhead; also by continuous metal louvres to the side windows. A gutter edge to the louvres drains off water at suitable points. The entrance at the rear on the near-side has a door which opens outwards and is held in position by spring catches. The destination indicator has the under-drive show-type gear of the Equipment and Engineering Co.

Sunbeam Motor Car Co., Ltd.—A 32-seat saloon coach was shown on the S.M.C. "Pathan" chasis. The body is by H. E. Taylor & Co., Norwich. It has a front near-side entrance and a rear emergency door. Comfortable springing is a feature of the vehicle, for it has underslung, semi-elliptic rear springs of a special type by Jonas Woodhead & Sons, Ltd., of Leeds. Its wheel-base is 16 ft. 6 in. With a Treasury rating of 37.2 the engine is capable of from 52 to 120 H.P. The six cylinders are of monobloc casting with two detachable heads. There is a seven-bearing crankshaft and a single-plate clutch.

Thornycroft 26-seat Omnibus, on 6-cylinder chassis.

J. I. Thornycroft & Co., Ltd.—A 26-seater saloon omnibus was mounted on Thornycroft BC Forward chassis. It is sumptuously finished with deep cushioned seats and padded head rests, sorbo-rubber covered floor, folding tables in seat backs, bevelled mirror on front bulkhead, all drop windows with curtains, decorative system of interior lighting, with bell pushes, etc. The chassis equipment includes 12-volt constant voltage lighting set, electric horn, speedometer and mileage recorder, petrol gauge, vacuum-servo brakes, mechanical tyre pump, grouped chassis lubrication, shock absorbers and 38 in. by 8.25 in. low-pressure tyres. With a six-cylinder Thornycroft engine the vehicle has come triumphantly through all trials, and is gaining the world-wide popularity which the company's products have enjoyed since the first years of public passenger transport by the road motor vehicle.

Tilling-Stevens Motors, Ltd.—The well-known "Express" B.10 A.2 chassis was shown with a 31-seat service omnibus body constructed by Short Brothers, which is shown in the illustration. It is also described in the notice of that firm's exhibit. The machine has forward steering, a 16 ft. wheel-base, wheels of detachable pressed steel, 38 in. by 7 in. pneumatic tyres, and C.A.V. constant voltage electric lighting equipment. With a Ricardo-designed four-cylinder engine the maximum horse-power is 70, the Treasury rating being 29 H.P. Lubrication is forced fed by pump. Ignition is by high-tension magneto. The gear-box gives four speeds and reverse,

31-seat Service Omnibus by Tilling-Stevens Motors. Body by Short Bros.

and the single-plate clutch is fabric faced. There is a worm final drive. On the instrument panel is a petrol gauge, clock and speedometer.

Vulcan Motor and Engineering Co., Ltd.—The "Emperor" 51-seat double-deck omnibus, and the "Prince" single-decker for 32 passengers, were noteworthy machines. The double-decker has the new "Monarch" six-cylinder engine. Rated at 45 H.P., it gives 100 B.H.P. at 1,700 R.P.M., and 137 B.H.P. at 2,800 R.P.M. Specially designed by the Vulcan experts in collaboration with Mr. Ricardo, the engine has a low speed torque, is unusually flexible and will pull smoothly at all speeds. These characteristics fit in with the intention that the "Emperor" should give bulk transport with the comfort, ease and efficiency of a high-class saloon car. This purpose is contributed to by, among other parts, the clutch, gear-box, the tubular transmission shafts with internal ring universal joints completely encased and partly filled with soft grease, and the fully floating rear axle with underslung worm. A feature of the gears is a positive locking device to prevent two being engaged simultaneously. The braking is all that can be desired. Luxury seating

"Emperor" 51-seat Omnibus with 6-cylinder engine—Vulcan Motor & Engineering Co.

is provided for 25 lower saloon passengers and for 26 in the upper saloon. By means of sunken gangways on the top deck the overall height of the fully enclosed vehicle is only 12 ft. 11 in. For the single-deck "Prince" the makers claim that the vehicle is fittingly named. In this case the Vulcan engine has six cylinders, is rated at 37.2 H.P., and develops 80 B.H.P. at 2,000 R.P.M. Both vehicles have a low-loading chassis and a 16 ft. 1 in. wheel-base

Digitized by Google

OMNIBUS AND COACH SECTION

CO-OPERATION BY OMNIBUS WORKERS.

OPEN LETTER BY THE OPERATING MANAGER OF THE LONDON GENERAL OMNIBUS COMPANY.

Omnibus operators, especially those who are responsible for the working of the large number of A.E.C. "Regent" omnibuses now to be found in the provinces, will be interested in the following extracts from an open letter which Mr. George J. Shave, the operating manager and chief engineer of the London General Omnibus Co., has addressed to the company's drivers, conductors and garage staff:—

"By reason of the increased power of the new omnibuses (which has been practically doubled as compared, for example, with the "N.S." type), coupled with the four-speed gear-box and more powerful brakes, greater road speeds with actually less exertion on the part of the driver, are obtainable. Less delay in loading and unloading the omnibus has also been aimed at by providing the roomy platform, a feature which would appreciably speed up the average journey time, so that better service can be offered to the travelling public.

"It will be clear, however, that all these improvements cannot be provided without adding appreciably to the first and running costs, the principal factor contributing to the increased running costs being the higher petrol consumption of the engine, consequent upon its greater power output. Now, we can only hope to make good our balance sheet in respect of these new vehicles in two ways; firstly by persuading more passengers to ride upon the omnibuses—and by ensuring that we collect full fares for the distance travelled—and secondly, by exercising all possible economy in the actual operation and maintenance of the vehicles themselves.

"The new vehicles have been designed on the lines and with the refinements of a private car, so that especial care is necessary to deal gently with the controls, otherwise damage can quickly be inflicted. Apart from causing unnecessary noise, undue use of low gears causes extravagant fuel consumption. For example, a run from Piccadilly Circus to Oxford Circus in third speed would use approximately a half-pint of petrol more than in top speed. If this were done only six times a day, the annual loss for 500 omnibuses would be no less than 11,300 gallons! On the other hand, undue 'plugging' of the engine in top gear on a hill results in *premature wear*. When about to round a corner, if necessary, drop into lower gear *before* taking the bend, and so avoid jerking and discomfort to passengers when picking up speed again.

"When changing down, double de-clutch so as to guard against gear grating. Do not slip the clutch more than is absolutely necessary, and *do not* rest your foot permanently on the clutch pedal.

"With the high compression high-speed engine, it is necessary to provide variable ignition in order to obtain the best performance. Unless used properly, however, extravagant petrol consumption or undue 'pinking' may result. The best performance in respect of pulling power and economy is obtained by advancing the ignition as far as the 'feel' and sound of the engine will permit.

"A small degree of 'pinking' is permissible, but must not be allowed to become excessive. To illustrate the effect of ignition advance on petrol consumption, an omnibus run for twenty-five miles with retarded ignition would use a half-gallon more than if fully advanced.

"Care should be taken to apply the Servo brakes gradually, otherwise the passengers will be subjected to severe discomfort and the brake mechanism and tyres worn out prematurely. On approaching a point, apply the brakes carefully and ease them off before coming to rest, avoiding the unpleasant jerk or 'recoil.'

"The starter is provided as a means for quickly and easily re-starting the engine in the event of its stopping for some reason. In view of the great ease with which the engine may be re-started, do not be afraid to throttle down the idling speed and thus save petrol. Petrol can also be saved by promptly switching off the engine at the terminal points. Great care, however, should be exercised to make sure that the engine is not running when pressing the starter switch, because serious damage may be done to the starter mechanism. If the engine will not start at the first two or three attempts, find out the cause of its failure to do so, in order to avoid draining the batteries unduly. For the same reason, switch off the interior lights when standing off service.

"In the event of a tap or knock developing in the engine, advise your garage without delay, because failure of the pressure-fed lubrication or a big-end may easily wreck the engine if it is permitted to continue running.

"It is essential that we carry as many passengers as we can; never pass a prospective fare. I cannot too strongly emphasise the importance of conductors looking round before ringing off, so as to avoid losing intending passengers.

"Special tools should be used by the garage staff wherever these are provided, in order to guard against damage caused by badly fitting spanners, grips, etc. With the higher powered engine, an increased petrol consumption is unavoidable. I would ask you, therefore, to take all possible precautions against waste of petrol. A strangler is provided to assist in starting, so that flooding of the carburettor is unnecessary

"To those concerned with carburettor tuning, I would mention that whereas careful adjustment of jets, etc., is necessary, no real economy is to be obtained by 'cutting down' the jets so far that power is lost and undue use of low gear made necessary. The six-cylindered engines embody force feed lubrication and overhead camshaft and valves. It is, therefore, more than ever necessary to exercise great care when starting from cold, so as to avoid over-racing. Whilst actual seizure may not take place, undue wear will occur if reasonable time is not allowed for the oil to warm up and find its way to all the moving parts."

THE ROAD TRAFFIC BILL.

PROVISIONS OF THE OMNIBUS BILL INCORPORATED.

The Standing Committee of the House of Commons on the Road Traffic Bill, on May 29, completed consideration of the Bill and then considered the Omnibuses Bill. The object of the latter measure is to give local authorities possessing transport services the power to extend them without application to Parliament, and the Committee agreed, after discussion, to incorporate its provisions in the Road Traffic Bill.

Mr. Morrison, who had moved a number of amendments to meet objections taken to the provisions, said local authorities would now obtain freedom to improve their transport services without costly proceedings in promoting Bills. He believed this would result in valuable co-ordination of transport.

Colonel Ashley said that, so far as he could gather, private enterprises concerned were satisfied with the Minister's concession.

Major Glyn, speaking for the railways, said they were prepared to co-operate and were, in fact, co-operating at present with municipalities for the benefit of all concerned.

The Road Traffic Bill, as amended, was ordered to be reported to the House. An amendment that the speed limit for vehicles over 2½ tons should be raised from 30 to 35 miles an hour was negatived by 10 votes to 8, but agreement was expressed with a suggestion by Lord Erskine that a clause should be proposed on the report stage to empower the minister, subject to the consent of Parliament, to vary the schedule of speed.

"ENGLISH ELECTRIC" TROLLEYBUSES.

The English Electric Company have received two additional important orders for trolleybuses from Bradford Corporation and from Messrs. Balfour, Beatty & Co., for the Nottinghamshire and Derbyshire Traction Company.

The order from Bradford is for 12 double-deck, top-covered vehicles, each having a seating capacity for 56 passengers. The chassis will be of the "English Electric" low-loading, three-axle type with air-operated brakes on all wheels, rheostatic braking also being included. The equipment will consist of a DK.122, 100 H.P. twin-type motor, fitted with roller bearings and "English Electric" contractor-type, foot-operated controller. This further repeat order from Bradford Corporation brings the total of trolleybuses supplied by the English Electric Company to this undertaking to 52 vehicles.

The order from Messrs. Balfour, Beatty for the Notts and Derby-Ilkeston routes is for six single-deck saloon-type "English Electric" trolleybuses, each having a seating capacity for 32 passengers, mounted on "English Electric" two-axle type chassis, with which is incorporated air-operated brakes on all four wheels and a system of rheostatic brakes is provided. The electrical equipment will consist of a DK.121, 60 H.P. motor, fitted with roller bearings, and "English Electric" contactor-type, foot-operated controller. These vehicles wll have the main entrance door at the near-side front and an emergency exit at the rear of the body.

Digitized by Google

OMNIBUS AND COACH SECTION

OMNIBUS AND COACH SERVICES.

MUNICIPAL.

ADDITIONAL GLASGOW ROUTE.—A new omnibus service has been started by Glasgow Corporation from Knightswood Road to Provanmill.

A YARMOUTH SUBSTITUTION.—Great Yarmouth Corporation has decided to abandon the tramways to Gorleston next September and to substitute double-deck omnibuses.

PROTEST AGAINST BOY CONDUCTORS.—Dundee magistrates are protesting against the employment of omnibus conductors under the age of 21 by the Corporation Transport Department.

MORE OMNIBUSES FOR LEEDS.—The authority of the Ministry of Transport is being sought by Leeds Corporation to borrow £24,000 for the provision of twelve double-deck omnibuses.

OMNIBUSES FOR A MANCHESTER ROUTE.—The City Council has abandoned the scheme for the construction of tramways with sleepers on the Kingsway extension, and will use motor omnibuses instead.

SUNDAY SERVICE STARTED.—Derby Tramways Committee has withdrawn the tramway service on the Burton and Uttoxeter roads on Sundays only, and have replaced it with an omnibus service.

ONE-WAY TRAFFIC AT SWANSEA.—The Watch Committee has approved the proposed one-way traffic system for omnibuses entering and leaving the town. The plan is to relieve traffic congestion.

A NEW ROUTE AT ABERDEEN.—Aberdeen Council on June 3 decided to replace the tramcars on the Torry route with motor omnibuses. It is proposed to secure three double-deck omnibuses on trial.

GLASGOW EXTENSION.—Glasgow Transport Department proposes to open a number of new omnibus routes in the city. There are now 180 double-deck omnibuses, and 60 more are expected within a few weeks.

BLACKBURN TO BUY COMPANY SERVICE.—Blackburn Tramways Committee has decided to exercise the Corporation's option of taking over the local omnibus service of the Ribble Motor Services, Ltd., from January 1, 1931.

AN OFFER TO KEIGHLEY CORPORATION.—An offer has been received by Keighley Corporation from the West Yorkshire Road Car Co. for the Corporation's transport undertaking. The Corporation has 30 omnibuses and 14 trolleybuses.

SWANSEA REPAIR DEPOT SCHEME.—The General Purposes Committee of Swansea Corporation has appointed a sub-committee to report on the steps required to be taken for the provisions of a repair depot for the authority's motor vehicles.

A PLYMOUTH SUGGESTION.—It is understood that a sub-committee of Plymouth Tramways Committee has agreed that certain tramway routes should be abandoned and omnibus services substituted. The section between St. Budeaux and Saltash Passage is regarded as the first.

AWARDS FOR CAREFUL DRIVING AT OLDHAM.—Of 102 omnibus and tower wagon drivers of Oldham Corporation who entered the competition for the National Safety First certificates 80 were successful. Of these 39 had an unblemished record for three consecutive years and 21 for two years.

SUCCESSFUL LEICESTER EXTENSION.—Leicester Traffic Sub-Committee reported that the omnibus service which was started to North Evington Hospital on April 13 last is a great success. Whereas private owners charged 3d. the Corporation fare was only 1½d., and in consequence private omnibuses had ceased to run.

OMNIBUS OR TROLLEYBUS AT EXETER?—Exeter Tramways Committee, faced with the cost of reconstructing the tramway track of the Alphington Road section, propose to abandon the tramcars and to substitute an omnibus service. The Committee intends to use experimentally a one-man omnibus. The Corporation has deferred a final decision until the desirability of using trolleybuses has been considered.

BELFAST FARES.—Belfast Corporation proposes to apply to the Road Transport Fares Tribunal for a revision of the fares on their omnibuses within the city. Mr. W. Chamberlain, general manager, recently reported to the Tramways Committee that the results of the present fares, which had been in operation for about twelve months, had not been satisfactory, and that the services could not be continued without further financial loss.

ROCHDALE'S BILL.—The Select Committee of the House of Commons has passed the Rochdale Corporation Bill, which provides powers for the substitution of some of the tramways by omnibuses and the protection of local routes from indiscriminate competition. The Bill is expected to come before the House of Lord's Committee in the last week of June. The monopoly clauses are opposed by the Lancashire County Council and Wardle Urban Council.

OMNIBUSES *v.* TRAMWAYS AT CARDIFF.—Coun. Henry Johns, chairman of the Cardiff Tramways Committee, states that the time has not yet arrived to settle the policy of the substitution of omnibuses for tramways throughout the city. His committee would have no hesitation in recommending the scrapping of tramways on any particular route on which it could be shown that omnibuses would be a better proposition, but in his opinion it would be many years before the tramways could be scrapped.

NEW METHOD OF OMNIBUS REGULATION.—South Shields Watch Committee has adopted new regulations, suggested by the chief constable, for control of omnibus traffic. Services within the borough are to be given numbers, and the licences are not to be for one route only, but for all or any of the routes within the borough. Effective control of the number of vehicles on each route will be maintained by the condition that "no greater number of vehicles shall be run at one time than are necessary to maintain the service authorised by the Corporation," and also by the time-tables. Long-distance services are to be effectively controlled.

GOOD RESULTS AT BURTON.—Ald. G. Hill, chairman of the Transport Committee, in submitting to Burton Corporation a report on the transport undertaking for the year ended March 31, stated that the last section of the tramways ceased operation on December 31. The miles of route covered by the tramways were about 6½; the omnibus routes were nearly 18 miles. The net surplus for the year was £1,289. Ald. Hill congratulated Mr. A. B. Slater, the general manager, and all concerned upon the manner in which the change over had been effected, especially as the alterations to buildings and equipment had to be made after the cars ceased running.

COMPANY.

SERVICE CHANGES HANDS.—Alfreton Transport Co. has purchased the undertaking of Haslam's Bus Co., which has been operating in districts round Derby.

PHYSICAL FITNESS OF DRIVERS.—Manchester Hackney Coach Sub-Committee has decided that every omnibus driver in the city must produce a doctor's certificate of fitness.

A GUILDFORD LICENCE.—Guildford Watch Committee has granted the application from the Underwood Express Services, Ltd., Southsea, to operate between London and Southsea.

RIPON PROPOSALS.—Ovington Motor Co., of York, has applied to Ripon Watch Committee for permission to extend its service from Ripon to Fountains Abbey, and to provide additional services between Ripon and York.

A LICENSING CONDITION.—Licences granted by the Bradford Watch Committee to B. & B. Tours, Ltd., for a Bradford-Blackpool service have been amended to provide that no passenger shall be carried to intermediate points.

A PETERBOROUGH SUBSTITUTION.—Peterborough Electric Traction Co. is replacing the tramcars with double-deck covered omnibuses (built by the British Electrical Engineering Co., Ltd.) and the cars will be withdrawn by the end of the summer.

TUNBRIDGE WELLS-TONBRIDGE DOUBLE DECK SERVICE.—Autocar Services, Ltd., have been granted licences by Tunbridge Wells Town Council to operate six double-deck omnibuses between Tunbridge Wells and Tonbridge, in addition to one at present running.

NEW COACHES FOR SOUTHERN AREAS.—Twelve new A.E.C. Regal coaches have recently been delivered to the East Surrey Traction Co., Ltd., of Reigate, for use in the Surrey, Sussex and Kent areas. The company's regular services cater for about 200 towns and villages.

COMPETITION IN FIFE.—Fife County Council Bylaws Committee has asked for a report on the present omnibus services in the county in view of a complaint that a local combination is endeavouring to adjust time-tables with the object of invading the times of omnibus owners who are not in the combine.

HOLIDAY SERVICES AT NEWLANDS CORNER.—The chief constable of Guildford has reported to the Watch Committee that he had received offers from the four companies operating regular services on the Guildford-Newlands Corner route, to duplicate their present services on Sundays and bank holidays.

Digitized by Google

OMNIBUS AND COACH SECTION

UNION CONDITIONS ON OMNIBUSES.—Sunderland Watch Committee has decided that all omnibus companies licensed by them be asked for an assurance that trade union rates and conditions as to hours are being observed. This is the result of a complaint that in some instances these conditions were not being observed.

CAUTIOUS SCOTTISH COMPANY.—An omnibus company informed Milngavie Council that it proposed to erect a garage, but desired an indication of the Council's attitude should Glasgow apply for permission to run omnibuses. The clerk said that any application from Glasgow would have to be considered on its merits.

A TYNEMOUTH EXPERIMENT.—Tynemouth and District Electric Traction Co., Ltd., has received permission from the Corporation to continue for a further four months its experimental omnibus service between North Shields and Whitley Bay. If omnibuses prove suitable to cope with the traffic on the route they may replace tramways.

RAILWAY OFFER TO GLASGOW COMPANY.—The L.M.S. railway has offered to buy the Glasgow General Omnibus and Motor Services, Ltd., for 9s. per £1 share, or a total of £132,750. The company, which was registered in 1926, has an issued capital of £295,000 and has not paid a dividend and has a debit balance £31,305.

BARNSLEY OMNIBUS BILL.—The Yorkshire Traction Co.'s Bill seeking powers to remove the tramway rails and to substitute motor-omnibus services for the existing tramways in Barnsley and District came before the Unopposed Bills Committee of the House of Commons and was passed for third reading. The Bill has already passed through the House of Lords.

CHATHAM'S NEW SERVICES.—Chatham and District Light Railway Co. propose to inaugurate the omnibus service in replacement of tramcars in the autumn. Mr. A. J. Bousfield, engineer and general manager, states that the omnibuses will be of the closed-in double-deck type, of 100 H.P., and seating 50 passengers. Forty or fifty are contemplated as a first delivery.

CONWAY AND DISTRICT SERVICE LICENCES.—Conway Council has granted the following licences: Silver Motor Co., 13 for the Conway-Llandudno route and two for the Conway-Colwyn Bay route; Royal Blue Co., 29 omnibus and coach licences for the Conway-Colwyn Bay-Llandudno routes; Mr. John Owen, proprietor of the New Blue omnibuses, three for the Colwyn Bay route and two for the Llandudno route.

NEW BRIGHTON LICENCES.—Brighton Watch Committee has granted the following express motor-coach licences: Keith and Boyle, for eight vehicles, London-Brighton service; East Surrey Traction Co., 12 vehicles for services to Epsom, Leatherhead and Dorking; Reigate, Redhill and Horley; and Dartford, Sevenoaks and Tunbridge Wells; Thorne Bros., for one vehicle for a service to London; Pilot Motor Services, Ltd., one vehicle for a service to London.

GLASGOW STANCES TO REMAIN.—Glasgow magistrates, after meeting the omnibus proprietors, announced that it had been decided to make no alterations meantime in stances, and that licensed omnibuses would be allowed to arrive at and depart from stances by the same routes as were set forth last year. It was also stated that the number of stopping places had been considerably increased and their location practically all adjusted with the proprietors.

NEW OSSETT-DEWSBURY SERVICE.—Ossett Corporation has granted the application of the Yorkshire (Woollen District) Electric Tramways, Ltd., and the West Riding Automobile Co., respectively on behalf of the National Electric Construction Co., Ltd., for licences to operate an omnibus service from Ossett to Dewsbury via Kingsway, subject to the two companies agreeing with the National Electric Construction Co., Ltd., to withdraw the service if and when the system of trolleybuses is inaugurated between Dewsbury and Ossett.

L.G.O.C. AND PURLEY AND WALLINGTON ROUTE.—Coulsdon U.D.C. has received a further letter from the London General Omnibus Co., stating that the company has on more than one occasion tried to extend the omnibus service from Purley to Wallington, but owing to roadside obstructions and the very excessive camber in Foxley Lane, it has been unable to obtain the approval of the Commissioner of Police to operate double-deck vehicles. The surveyor reported that the alteration of the camber in Foxley Lane would receive attention in the near future and the Council has decided to request the company to reply regarding the provision of additional omnibuses on this route during peak hours.

LONG-DISTANCE.

A ROUND-BRITAIN TOUR.—Thomson's Tours, Ltd., Glasgow, have started a new round-Britain tour at a cost of £3 12s. 6d., exclusive of hotel accommodation. It lasts five days.

NEW LONDON-HULL SERVICE.—East Yorkshire Motor Services, Ltd., has started a service via Leicester, Nottingham, Doncaster, and Selby. Fares are 18s. single and 29s. 6d. return.

BLYTH-GLASGOW SERVICE.—United Automobile Services, Ltd., has received permission from the Blyth authorities to operate a twice-daily service between Blyth and Glasgow, via Whitley Bay and Newcastle, provided that no intermediate passengers be conveyed.

FROM PRESTON TO NEWCASTLE.—The Ribble and Northern General Companies have commenced an express service between Preston and Newcastle, connecting at Preston with coaches for Southport.

LONDON-OXFORD SERVICE EXTENDED TO WORCESTER.—A twice-daily extension to Worcester has been made by the South Midland Touring and Transport Co., who now run seven times a day between Oxford and London.

A SECOND FIRE EXTINGUISHER.—Bexhill Corporation, in granting the application for the renewal of motor-coach licences to the East Surrey Traction Co., Ltd., and Auto Services, Ltd., require the provision of a second fire extinguisher for each coach.

NEW LIVERPOOL-WESTON-SUPER-MARE FACILITY.—Cheltenham Watch Committee has granted licences to Merseyside Touring Co. for six omnibuses for service between Liverpool and Weston-super-Mare, in conjunction with the Greyhound Motors, Ltd.

SERVICES FROM NEWCASTLE.—The Northern General Transport Co.'s summer programme shows coaching tours ranging up to fourteen days. There are daily services between Newcastle and Blackpool, and between Newcastle and Keswick, and numerous day and half-day tours.

SERVICES TO COLWYN BAY.—Colwyn Bay Council at a recent meeting licensed over sixty saloon motor coaches to operate in the district on the London-Manchester and Midlands services to North Wales. One London company stated that last season it carried 5,000 passengers to Colwyn Bay.

COMPANY'S A.B.C. TIME-TABLE.—London Coastal Coaches have adopted an A.B.C. form of time-table in their summer programme. Practically all the towns in England are included. The London Coastal Station now acts in London for the East Midland services to Sheffield and the Blue Band services to Middlesbrough and West Hartlepool, now operated by United Automobile Services.

ADDITIONAL FACILITIES AT RIPON.—The Watch Committee has granted licences for the following additional services: Liverpool-Newcastle via Skipton and Clitheroe, by Merseyside Touring Co.; Liverpool-Redcar, via Warrington, Irlam, Manchester and Middlesbrough, H. T. Easton and Sons; Blackpool-Middlesbrough, via Preston, Clitheroe, Ilkley, Harrogate and Northallerton, Smith's Safeway Services, Ltd.

CARLISLE LICENCES GRANTED.—Carlisle Watch Committee has granted the following licences: Emmerson & Co., Newcastle-on-Tyne—Victoria Place to Newcastle-on-Tyne, via Hexham; Ribble Motor Services, Preston to Glasgow; White Star Motors, Carlisle to Raffles and Orton Road; Carlisle and District Motor Services—to Kingstown; Cumberland Motor Services, Whitehaven—to Silloth, Maryport, Whitehaven and Keswick.

MIDLAND COMPANY'S ENTERPRISE.—Birmingham and Midland Motor Omnibus Co., Ltd., has started six new services recently. Three are to London—from Leicester via Bedford and Luton; from Birmingham via Stratford and Banbury or via Daventry and Dunstable, and a service via Coventry. The other new services are from Birmingham to Plymouth and Torquay (run jointly with the Greyhound Co.) and from Birmingham to Yarmouth.

L.G.O.C. EXPRESS SERVICES.—London General Omnibus Co. has started limited-stop express services, operated by subsidiary companies, from Tunbridge Wells via Sevenoaks and Bromley (operated by the Autocar Company) at 3s. 6d. single and 3s. 10d. return, and three services operated for the L.G.O.C. by the East Surrey Traction Co. from Redhill via the main Brighton Road, Reigate via Sutton, and Dorking via Leatherhead, the fares being 2s. single and 3s. return. These four services run every hour. The London terminus is Oxford Circus.

Digitized by Google

OMNIBUS AND COACH SECTION

MOTOR TRAFFIC NOTES.

CENTRAL STOPPING PLACES.—Guildford Watch Committee has asked the chief constable to obtain particulars from towns where there are central stopping places for omnibuses provided by the local authority or by omnibus proprietors.

STOP LIGHT EXPERIMENTS.—Experiments by Birmingham Tramways and Omnibus Department in the use of automatic stop lights for tramcars are being continued. An automatic stop light is being fitted to every new omnibus put on the road.

THE NEW LONDON TAXICAB.—Scotland Yard has approved the "Austin Twelve" as a taxicab. Unsplinterable glass will be a standard fitting and the vehicle will provide a high degree of comfort. It is understood that the price will be £395.

CENTRALISING MAINTENANCE DEPARTMENT.—Morecambe Corporation has asked the general manager of the engineering department to report upon the advisability of centralizing the maintenance of all the Corporation's transport vehicles and rolling stock.

SIX MOTOR LORRIES WANTED.—Bristol Sanitary Committee recommends the purchase of six lorries at a total cost of £2,100, five for general hauling in the sanitary districts and one for the collection of refuse. Hitherto such vehicles had been hired.

IRISH BORDER TRAFFIC.—Following a discussion at Donegal County Council on trans-border omnibus traffic, it was agreed to ask the Government to introduce legislation for the control of omnibus routes and providing for reasonable rates and good service, and to ask the Government to assume responsibility of the main roads as a national charge.

QUESTION OF UNFIT DRIVERS.—A sub-committee of the Transport Committee of Dundee Council discussed what is to happen to employees who fail to pass the medical examination recently decided upon by the Council. Mr. D. P. Morrison, transport manager, advised that there should be a periodical re-examination. It was decided to remit the question to the parent committee.

SHEFFIELD TRAFFIC BEACON.—Following a decision of Sheffield City Council to sanction the Pinstone Street one-way traffic control scheme and the removal of the various tramway termini to the front of the Town Hall and St. Paul's Church, a road beacon was immediately erected in the centre of Town Hall Square. It is not a traffic control signal, but slows up and splits the traffic by red light flashes.

INSPECTION OF PETROL STORES.—Manchester Watch Committee has requested the Association of Municipal Corporations to use every endeavour to obtain the early sanction of the Government for facilities for the passing into law of a Bill giving local authorities certain powers to inspect premises where petrol is stored which existed before the promulgation of the Petrol Spirit (Motor Vehicles) Regulations, 1925.

THE HIGHWAY CODE.—Asked whether he proposed to consult all interests using the roads before he brought the Highway Code into operation, the Minister of Transport stated that it was his intention to consult with representative organizations of road users in the preparation of the Code, when the Traffic Bill became law. He had not yet decided on the procedure which it would be most desirable to adopt to this end.

BRITISH ENTERPRISE IN THE NEAR EAST.—Whitehall Electric Investments, Ltd., have completed negotiations whereby the complete control of the electric light and power services throughout Athens, Piræus, and other suburbs will pass into British hands. Existing electric tramway, railway and omnibus services will be extended and reconditioned. It is understood that the work will call for a large expenditure of capital.

ARMOURED ROAD AT STOPPING PLACES.—A short length of road recently laid at Pentre incline bridge with the Estler-Irvico streamline armour draws attention to the advantage of this method at omnibus stopping and starting places. Steel in grid form takes the wear and tear, and the interstices are filled with the usual paving material, giving a smooth level surface in the final result. The length at Pentre was laid in the presence of Mr. P. Doherty, chief engineer of Estler Bros., Ltd., London, and Mr. E. Taylor, surveyor and engineer to the Rhondda Urban Council.

TAXATION OF PETROL-ELECTRIC GOODS VEHICLES.—The House of Commons on June 3 rejected an amendment moved by Sir Lambert Ward to the Finance Bill to place petrol-electric goods vehicles in the same category as battery-driven vehicles. The latter enjoy a reduction of 50 per cent. in licence duty. Mr. Pybus, supporting the amendment, said that the restriction would retard a very fine development in electric traction. In London the noisy vehicle was the goods lorry with a gearbox inefficiently handled. The Minister of Transport contended that it would not be fair to tax the petrol vehicle 100 per cent. higher than the petrol-electric.

REGULATIONS FOR BROKEN-DOWN VEHICLES.—The Minister of Transport proposes to make revised regulations with regard to broken down vehicles in streets in the London Traffic Area. The regulations were originally made to secure the speedy removal of a broken down vehicle, but did not provide for the imposition of a penalty for delay. In the draft of the revised regulations a clause has been added under which any person who acts in contravention of or fails to carry out his duty under the regulations will be liable on summary conviction to a fine not exceeding £5. Another proposed addition is that no owner, driver, or other person in charge of any vehicle shall cause or permit it to be in any street in such a condition, or with such a load that it breaks down.

SOME RECENT ORDERS.

BOLTON GAS COMMITTEE has purchased a Leyland 50-cwt. motor-lorry fitted with hydraulic tipping gear.

LEYLAND MOTORS, LTD., have a contract to supply Worcestershire County Council with three 5-ton petrol lorries.

KARRIER MOTORS, LTD., have a contract from Hull Corporation for the supply of two motor-lorries at £500 each.

PORTSMOUTH CORPORATION has accepted the Forest City Electric Company's tender for automatic traffic signals at £140.

SOUTHEND CORPORATION has purchased a six-ton lorry complete with tipping gear from Dennis Brothers, Ltd., at £1,000.

RANSOMES, SIMS & JEFFERIES, LTD., have received an order from Ipswich Corporation for three trolley omnibuses at £4,344.

SWANSEA HEALTH COMMITTEE has accepted the tender of Karrier Motors, Ltd., at £650, for the supply of a motor sweeping machine.

BIRKENHEAD SANITARY COMMITTEE has accepted the tender of Dennis Brothers, Ltd., for the supply of two six-ton motor vehicles.

SIEMENS ELECTRIC LAMPS AND SUPPLIES, LTD., have a contract from the Air Ministry for a large quantity of Siemens automobile type lamps.

BRADFORD CORPORATION has accepted the tender of the English Electric Co., Ltd., at £27,000, for the supply of twelve double-deck trolley omnibuses.

RICHARD GARRETT & SONS, LTD., Leiston, are the successful tenderers for the supply of four electric vehicles at £1,125 each for Glasgow Cleansing Committee.

THE ROTO ENGINEERING CO., LTD., of Bradford, are supplying five of the Corporation's motor omnibuses with "Refresher" ventilators at £10 10s. per vehicle.

DUNLOP RUBBER CO.'s offer to Leeds Tramways Committee for the supply of tyres for omnibuses on a mileage rate has been accepted for an experimental period.

ROTHERHAM TRAMWAYS COMMITTEE has accepted the tenders of the Bristol Tramways and Carriage Co., Ltd., for five omnibus chassis, and of Chas. H. Roe, Ltd., of Leeds, for five omnibus bodies.

YORK TRANSPORT COMMITTEE has recommended the following tenders: Crossley Motors, Ltd., three omnibus chassis, at £795 each; Leyland Motors, Ltd., three chassis, at £813 5s. each; C. H. Roe, Ltd., six bodies, at £475 each.

MANCHESTER TRANSPORT COMMITTEE has placed a contract with Oil Installations, Ltd., for the installation of two petrol fuelling columns and power pump at Queen's Road Garage, and with Thompson (Bilston), Ltd., for a 250-gallon petrol road tank.

THE VULCAN MOTOR & ENGINEERING CO., LTD., have received an order for a 32-seat omnibus for the Office of Works. The same firm is supplying Vulcan refuse vehicles to a number of local authorities, and a six-cylinder ambulance chassis to Glasgow Education Authority.

THE EQUIPMENT & ENGINEERING CO., LTD., have an order from Pontypridd Urban Council for an H.8 high-pressure air compressor for pneumatic tyre inflation. Redcar Services, Tunbridge Wells, have purchased one of the Equipment & Engineering Co.'s type T.A. electro-magnetic crack detectors.

BRISTOL TRAMWAYS AND CARRIAGE CO., LTD., have the following "repeat" orders for "Bristol" passenger vehicles: Frank Hall and Co., Broughton Astley, Leicester, one 31-seat omnibus on 4-cylinder chassis; Rotherham Corporation, five 4-cylinder four-wheel passenger chassis; Aberdare Urban Council, one 32-seat one-man-operated single-deck omnibus on 4-cylinder chassis.

Digitized by Google

THE
Tramway and Railway World
FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.
Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates:

FOR THE UNITED KINGDOM—Twenty-five shillings per annum
FOR ALL PLACES ABROAD—Twenty-five shillings per annum. Postage to Canada, 6s.; to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS

LONDON, JUNE 21, 1930.

THE OUTLOOK FOR THE ROAD TRAFFIC BILL.

Provided there is no waste of time there is some hope that before Parliament rises in August the Road Traffic Bill will have become law. The proposals embodied in the measure by the present Government were in the main introduced when Colonel Ashley was the Minister of Transport, after the recommendations of a Departmental Committee had been considered by the various interests concerned. In the form that they were taken over by Mr. Morrison, the present Minister of Transport, the proposals constituted a considered effort to remedy the defects of the Motor Car Act, 1903, and of the amendments that were made to it in the interests of the heavier vehicles. Since the war these shortcomings have been added to by the difficulties arising from the vast extension of motor omnibus and coach traffic. Private operators, local authorities who are owners of town and inter-urban transport undertakings, the watch committees who had the task of granting the omnibus and coach licences, and the makers of vehicles, all had objections which had to be considered by the Minister in drafting the Bill. In view of the number of interests affected it is remarkable that, although the measure was not introduced into the House of Lords until December last, it is now awaiting final consideration by the House of Commons. Our readers, apart from their position as private car owners, are affected by the Bill as municipal, company and individual operators of public vehicles. Each of these interests has striven in committee to secure further concessions than were granted to them after conference with Mr. Morrison and his department. The most pleasing tribute to the Minister's conduct is to be found in the fact that when the Commons Committee accomplished the contentious business of restoring Part 5 to the Bill, Colonel Ashley admitted that due consideration had been given to the claims of private interests. Part 5 is that portion which had been deleted by the House of Lords, and its provisions enable local authorities to extend omnibus services a reasonable distance beyond their boundary without the expense and delay imposed by the present practice of promoting legislation. Such extensions are to be subject to the provisions relating to public service vehicles. Concentration of road licensing in the hands of independent officials, inspection of vehicles before licensing, and compulsory insurance are gains that will pave the way to the co-ordination of facilities which the Commissioners will be charged to secure. All that is now required is for the House of Commons to adopt a reasonable attitude on the question of the speed schedules.

MINISTER OF TRANSPORT ON ROAD WORKS.

Mr. Herbert Morrison, Minister of Transport, addressed the conference of local authorities on unemployment, at which the Prime Minister presided on Tuesday. Mr. Morrison referred to the development, principally in rural areas, of omnibus services, and asked the conference not to underrate the local value of expenditure which made such facilities possible. Since 1920 about £48,000,000 had been spent on schemes expedited with a view to relieving unemployment. While the Government did not agree that hundreds of millions of pounds could be usefully spent on roads, in a short period of time, they considered that roads could make an important further contribution both to the national development and to the relief of unemployment. He called attention to three classes of work the economic value of which would hardly be disputed. First the completion of schemes on which large sums had already been spent. Ring roads round great cities were a case in point. Certain sections were in use, but owing to missing links or unfinished ends the ring road was not playing the part it should in relieving traffic congestion. The same remark applied to the radial and arterial roads leading out of towns and cities. Next in importance he put the reconstruction of weak bridges, and thirdly he suggested that grants could be obtained from the Road Fund for the removal of obstructive level crossings.

INSTITUTE OF TRANSPORT.

One of the papers to be read at the Congress of the Institute of Transport at Glasgow, which will be held from July 8 to 12, is on "Long Distance Omnibus Services: their place in the National Scheme of Transport," by Mr. W. J. Thomson, managing director of the Scottish Motor Traction Co., Ltd. A paper on "Railway Amalgamation and its Effect on the Workshops" will be read by Mr. E. J. H. Lemon, carriage and wagon superintendent, L.M.S.R., and another on "The Economics of Port Development and Administration," by Sir George Buchanan, K.C.I.E. Numerous visits and excursions have been arranged, amongst them being visits to the test line of the railplane system of transport at Milngavie; the locomotive and carriage works of the L.M.S.R. at St. Rollox, and the L.M.S.R. locomotive running sheds at Polmadie; the shipbuilding yard of John Brown & Co. at Clydebank; the works of the North British Locomotive Co. at Springburn; the works of the Albion Motor Car Co. at Scotstoun; the Coplawhill Car Works and the new motor garage at Victoria-road, of the Glasgow Corporation Tramways; and the factories of the Scottish Co-operative Wholesale Society at Shieldhall.

A MELBOURNE TRAMWAY BURDEN.

A deputation from the Tramway Employees' Association and the Tramways Officers' Association recently waited on the Victoria Minister of Public Works to ask for the abolition of the heavy statutory payments which the Melbourne Tramways Board is required to make each year from its gross earnings to the Licensing Reduction Fund, the Infectious Diseases Hospital, and the Fire Brigades Board, totalling nearly £120,000. It was urged that there was no reasonable justification for seizing tramway earnings for uses not even remotely associated with the tramway business, and that owing to heavy loss in revenue the Board had in the past six months dismissed 500 employees.

The Minister, recalling that the question had been considered by more than one Ministry, said that since the system was introduced in 1920, the contributions had exceeded £1,000,000. He promised to bring the matter before the Cabinet with the object of securing at least some relief.

A Salford Inquest.—At an inquest on June 18 on the woman who was killed when a Salford Corporation tramcar jumped the metals and overturned, the jury returned a verdict of "Accidental death." The foreman added: "We find it a pure accident owing to the car jumping the points." The Coroner said the easiest explanation was that the car was diverted in the direction of the loop line and that the point did not lift, so that the car had to proceed in that direction. There was a difference of opinion regarding the speed of the car. The driver, in giving evidence, said that on coming to the points he checked the car with the hand-brake; as soon as it reached the point and came round suddenly to the right he put on the emergency electrical brake, but the car charged directly across to the right and gradually toppled over. He estimated his speed at only four or five miles an hour. He considered the lines in a fairly good condition. Mr. Moffat, the general manager of Salford Transport, said that the cross-over was constructed about 1907 with the approval of the Ministry. He agreed that all facing points had to be watched very carefully.

Digitized by Google

THE ROAD TRAFFIC BILL.

A NEW MONEY RESOLUTION NECESSARY.

The Standing Committee of the House of Commons on the Road Traffic Bill met on Thursday, under the chairmanship of Sir Hugh O'Neill, to consider one of the provisions which had caused the measure to be re-committed to them on the ground that it was *ultra vires*.

Mr. Morrison, Minister of Transport, explained that in the Bill there was originally a provision that all fines imposed by a court of summary jurisdiction for contraventions and all fees received by local authorities for licences under Part I of the Bill should be paid into the Exchequer. The Committee made what appeared to be a common-sense amendment to make this applicable to all fees and fines; but, unfortunately, attention was not called to the fact that the Money Resolution repeated the words "court of summary jurisdiction." He assumed that the whole Committee would wish the amendment to be made, and the question was how best to do it. It would be impossible to introduce another Money Resolution in the House unless there was an undertaking that it would be treated as non-controversial. If the amended Money Resolution were passed by the House, the Committee could meet again and formally dispose of it.

The Committee agreed to this course, and adjourned, "The Times" states, on the understanding that they would meet again after the new Money Resolution had been carried.

GLASGOW CORPORATION TRANSPORT.

Following is an abstract of revenue and expenditure of Glasgow Corporation Tramways Department for the year ended May 31, 1930, with comparative figures for the previous year:—

TRAMWAYS SECTION.

	1930		1929
REVENUE:	£		£
Traffic Receipts	2,312,741		2,279,937
Sundry Receipts	4,886		4,953
	2,317,627		2,284,890
EXPENDITURE:			
Traffic Expenses	843,652		840,003
General Expenses	344,685		333,235
Maintenance and Repairs	374,178		396,110
Power Expenses	124,670		112,701
Clydebank Bridges	1,850		1,959
Balance to net revenue	628,592		600,882
	2,317,627		2,284,890
NET REVENUE:			
Balance from Net Revenue	628,592		600,882
Interest on Investments	130,314		103,036
	758,906		703,918
Interest on Capital	135,159		116,011
Sinking fund	74,754		68,212
Income tax	77,581		66,163
Parliamentary expenses	356		199
Renewal and depreciation	462,920		538,525
Balance	8,136	Deficit	85,222
	758,906		789,140
APPROPRIATION:			
Tramways Surplus	8,136		85,222
Subway Deficit	25,277		19,391
Deficit	£17,141		£104,613

OMNIBUS SECTION.

	1930	1929
REVENUE:	£	£
Traffic Receipts	349,232	185,260
Sundry Receipts	143	70
	349,375	185,330
EXPENDITURE:		
Traffic Expenses	101,798	51,240
General expenses	20,004	8,493
Licences	12,446	7,945
Repairs	62,372	27,639
Power expenses, petrol, etc.	71,399	36,205
Hire of omnibuses	528	...
Superannuation, etc.	3,673	1,663
Balance	77,095	52,145
	349,375	185,330
Balance brought forward	77,095	52,145
Interest on investments	361	...
	77,456	52,145
Interest on capital	9,726	2,376
Sinking fund	5,185	1,279
Depreciation	60,982	35,333
Surplus	1,563	13,157
	£77,456	£52,145

The Subway Section receipts were £93,150, against £96,758 for 1928-29; and expenditure £94,139 (£93,154), leaving a deficit of £989, as against a surplus of £3,604 for the preceding year. After meeting interest and sinking fund, the deficit was increased to £28,268, compared with £25,315 for the previous twelve months.

A Walsall Transport Order.—Walsall and District Co-operative Society has accepted the tender of Walsall Corporation for the conveyance of 10,000 of their members to Sutton Park on August 14. The Midland Red Omnibus Co. are operating with the Walsall Corporation in furnishing a number of the motor omnibuses required. Mr. W. Vane-Morland, general manager of the Corporation Tramways and Motor Services, suggests that this may be a record booking as regards numbers for a special party by omnibus.

MISCELLANEOUS NEWS AND NOTES.

Refusal to Pay Excess Fare.—A man was fined 10s. at Liverpool for refusing to pay a penny excess fare on a tramcar.

Popular Omnibuses.—Sunderland Corporation omnibuses carried 446,840 passengers in May, nearly double those of May last year.

East Ham Tramways Committee is about to reconstruct the tramway track along Station-road and over Manor Park Bridge at a cost of £3,418.

Birmingham's Whitsun Traffic.—During the Whitsuntide holiday, Birmingham Corporation tramcars and omnibuses carried over 4,000,000 passengers, about 100,000 fewer than last year.

Proposed Highway Code.—A Highway Code which would preserve the rights of pedestrians and make further provision for prevention of dangerous driving is advocated by the Pedestrians' Association.

New Administrative Offices.—Portsmouth City Council has approved plans submitted by the Tramways Committee for new administrative offices at Eastney, at an estimated cost of £21,000.

Fare Anomalies.—Sheffield tramway passengers complain of anomalies in the reduced fares recently introduced. The chief grievance is having to pay three-halfpence for a shorter route than another for which only a penny is charged.

Garage for Greenock.—Greenock Corporation has accepted the offer of Greenock Motor Services Co. of £5,000 for a piece of land on which to build an omnibus garage. Besides the garage, spacious offices and a waiting room for the public will be built.

Dundee Omnibus Conductors to be Licensed.—The Transport Committee of Dundee Town Council has decided that all omnibus conductors in the Corporation Transport Department shall be licensed, the age limit for such employment to be 18.

Royal Commission on Transport.—The Royal Commission on Transport will meet in public at 2 p.m. on Wednesday, June 25, in Room 9, Ministry of Labour, Montagu House, S.W.1, to hear evidence to be given on behalf of the Long Distance Road Haulage Committee of Inquiry.

Omnibus Competition in Madras.—At the meeting of Madras Electric Supply Corporation in London on Tuesday, the chairman, Mr. J. G. B. Stone, said that the reduction in net profit on the tramways was due to the strenuous competition still encountered from motor omnibuses and to increased charges for repairs and maintenance.

Physical Fitness of Drivers.—The Hackney Coach Sub-Committee of the Manchester Watch Committee decided on Thursday that every omnibus driver in the city must produce a doctor's certificate of fitness. The decision applies only to drivers of private omnibuses, as drivers of corporation vehicles are already tested for physical fitness.

Passing Tramcars on the Near Side.—Mr. Douglas Cowburn, South London Coroner, at an inquest on June 16, made some remarks concerning the danger of motorists passing stationary tramcars on the near side: "This practice is not contrary to the law in London. It is so in some towns in Scotland, and I wish very much it was here. Many accidents would be avoided."

Cautious Scottish Company.—An omnibus company informed Milngavie Town Council that it proposed to erect a garage at a cost of £2,000 to £3,000, but before committing itself desired an indication of the Council's attitude should Glasgow Corporation apply for permission to run omnibuses. The clerk said that any application from Glasgow would have to be considered on its merits.

Wolverhampton and the Penny Fare.—At a meeting of Wolverhampton Town Council, the Mayor, referring to the prosperity of the transport undertaking, said that next year they hoped to introduce a minimum penny fare instead of the present 1½d. They had a fleet of 66 trolley vehicles and 69 omnibuses, and in the last seven years had spent £200,000 on vehicles and road adaptations. By the end of another year their new system would have paid off £140,000 of the tramway debt.

Centre Entrance for Omnibuses.—The English Electric Co. inform us that a number of the 20 double-deck petrol omnibus bodies recently supplied to the Nottingham Corporation Transport Department were fitted with a special centre entrance. This centre entrance has proved a great success in service, as it facilitates the quick loading and off-loading of passengers. The design has been patented by the English Electric Co., and particulars may be obtained from the company's Preston works.

Double-Deck Omnibuses for Aberdeen.—Aberdeen Tramways Department recently decided to run double-deck omnibuses on certain routes, and an application was made to the magistrates for a licence. The chief constable objected on the ground that the vehicle was over the regulation weight. The vehicle for which application was made weighed 9 ton 4 cwt. Mr. J. L. Gunn, the tramways manager, said he was afraid the police were not up to date with the regulations. He produced regulations from the Ministry of Transport issued on June 1 which indicated that the permitted weight was 9 tons 10 cwt. The licence was granted.

Morgan Crucible Co.—The Morgan Crucible Co. is a new company just registered to acquire the undertaking of the Morgan Crucible Co., Ltd. (incorporated in 1890), pursuant to a scheme of arrangement and reconstruction sanctioned by an Order of Court dated June 6, 1930. The capital is £3,258,000, in £1 shares, divided into 300,000 six per cent. cumulative first preference, 300,000 five and a half per cent. cumulative second preference, 500,000 seven per cent. non-cumulative preferred ordinary, and 2,158,000 deferred ordinary. The directorate is the same as that of the old company. So long as Doulton & Co. hold 158,000 deferred ordinary shares they may nominate one director.

Digitized by Google

Omnibus Fares Applications.—An application by the L.M.S. Railway Co. to increase the passenger fare on the company's omnibus service between Belfast and Ballyclare from 5s. to 6s. was refused by the Northern Ireland Transport Fares Tribunal. A request to increase the weekly season ticket fares between Belfast and Kilroot was granted, also to adjust the fares on the Larne-Cushendall services.

Dover's Purchase of Cars.—The tramcars recently purchased by Dover Corporation were, we understand, from the Birmingham and Midland Joint Committee, the remainder of a number of cars which that committee had disposed of. The cars were sold to Dover through A. Devey & Co., Ltd. In a recent issue it was reported that the cars were purchased from Birmingham Corporation. That authority, however, has never sold any cars since the electrification of the city's tramways.

Delegates to International Conference.—The London County Council has resolved that Mr. A. Emil Davies, Mr. F. Bertram Galer, chairman of the Highways Committee, and the clerk shall represent them at the conference of the International Union of Local Authorities to be held at Liege and Antwerp in July. The matters to be discussed include the insurance of local authorities against all risks, and trading undertakings of a character partly public and partly private.

Salesmanship Talks to Omnibus Men.—Middlesbrough Tramways Committee is to arrange for lectures on salesmanship to be given to the conductors and drivers of their omnibuses. At a meeting of the Committee, Councillor Cooper said there had been many complaints that cars did not stop at the recognised halts to pick up passengers, and he suggested that a mass meeting of the staff should be called and an appeal made to them to improve their contribution towards the service. They had to realise, he said, that they were salesmen just as other people were. If the drivers used greater vigilance the number of passengers would be greatly increased.

Omnibus Speeds on the Great North Road.—At a meeting of the Darlington Rural Council on June 16, protests were made against the speeding of motorists along the Great North Road. Mr. J. Atkinson said that about 3,000 motor vehicles passed through Aycliffe daily. The biggest offenders were long-distance omnibuses, and he believed the schedules were at the root of the trouble. Some of the vehicles had to cover 280 miles in 10½ hours. Mr. Atkinson stated a recent instance where a motorist finding himself between two omnibuses had to maintain a speed of 58 m.p.h. to keep his position. The Council decided to draw the attention of the police and the County Council to the danger caused by fast traffic.

FINANCIAL.

Yorkshire (West Riding) Electric Tramways.—The directors have decided to pay an interim dividend of 3 per cent. for the half year ending June 30, on the 6 per cent. cumulative preference shares.

British Lubricant Manufacturing Co. has declared an interim dividend of 4 per cent. actual on cumulative participating preferred ordinary 10s. shares.

Great Yarmouth Tramways made a net profit of 3s. 8d. during the past year, a decrease of £1,353; and the omnibuses £6,650, an increase of £5,187. The balance in hand was £8,119, but out of that five more omnibuses were purchased, leaving £1,808.

Oldham Tramways and Omnibuses.—The Transport Department of Oldham Corporation have had a successful year, and report a profit (not a loss, as stated in last week's issue) of £4,760 on the tramways. On the omnibuses there was a loss of £20,072.

Guy Motors to Increase Capital.—It is proposed to increase the nominal capital of Guy Motors, Ltd., to £750,000 by the creation of 570,570 new shares of 10s. each. This is considered advisable in view of possibilities of the acquisition of, or developments in connection with, other interests in the industry.

Lisbon Tramways Prospects.—At the meeting of Lisbon Tramways Co. in London on Monday, Lieut.-Col. Pollen, C.M.G., chairman, said that owing to the economic progress being made in Portugal the company's undertaking was bound to benefit, the outlook giving every prospect of some return to former prosperity.

Wolverhampton Transport.—For the year ended March, Wolverhampton Corporation transport shows a net profit of £14,379. Gross profit on trolleybuses was £75,271, and on omnibuses £26,236. This is the first complete year without tramcars. Passengers carried were: trolleybuses, 23,175,998; omnibuses, 16,522,399.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended June 18 amounted to £82,641, a decrease of £939 compared with the corresponding week of last year. The route length was 165.60 miles, as compared with 166.29 a year ago. From April 1 (the commencement of the financial year) to June 18 (11 2-7 weeks), the total receipts were £943,381, a decrease of £2,312.

Municipal Transport Receipts.—Official returns of thirty-nine of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended May 31 give total receipts of £418,517, or £6,456 more than in the corresponding week of last year. The aggregate receipts for nine weeks amounted to £3,707,969, an increase of £54,693 over the corresponding period of last year.

Lanarkshire Traction Co.—In the report for the year ended December 31, 1929, the directors state that in view of the loss in operating the tramways it is proposed to abandon them at an early date. Arrangements have recently been concluded for obtaining the motor omnibuses required. The company obtained a provisional order in December last authorising abandonment of the tramways. After payments to local authorities, there was a loss on the year's working of £870.

British Electric Traction Co., Ltd.—Report for the year ended March 31 shows gross profit of £396,261 (against £330,822). Deducting general expenses, there remains net profit of £332,560 (against £276,474). Debenture stock interest absorbs £79,478, and there remains £253,081, an increase of £56,086 over the previous year. The directors recommend: Dividend 6 per cent. on cumulative participating preference stock, £42,764; dividend 8 per cent. on preferred ordinary stock, £106,101; and 5 per cent. upon deferred ordinary stock, £8,383. The directors further recommend that £16,768, equal to 10 per cent. on ordinary stock, be capitalised and applied in paying up in full 16,768 deferred ordinary shares of £1 each, which will be distributed among the holders of the deferred ordinary stock. Preference stock-holders are entitled to a further dividend of 1.89 per cent., amounting to £13,516, making a total of 7.89 per cent. for the year. These further appropriations leave £65,547 to be added to the undivided profits account, making that account £251,798. Reserve now stands at £520,000. Owing to the success of a year of exceptional activity, the directors have paid the staff a bonus equal to two months' salary, increased in some cases for special services rendered in connection with the negotiations with the railway companies and others. The directors have also set aside £14,000 to form the nucleus of a staff benefit fund.

PERSONAL.

Mr. R. J. Howley has been appointed deputy-chairman of the British Electric Traction Co.

Mr. C. F. C. Gifford, engineer-salesman of the Associated Equipment Co., left on June 13 for South Africa, where he will represent the company from the Griffin Engineering Co., Ltd., Griffin Building, 43, Anderson-street, Johannesburg.

Mr. G. H. Lake has been recommended for appointment as chief engineer and general manager of the Nottingham Electricity Undertaking, at a salary of £1,750 per annum, in the place of Mr. H. Talbot, who has retired after 40 years' service.

Sir Alexander Roger, formerly vice-chairman of British Insulated Cables, Ltd., has been appointed chairman of the company in succession to the late Mr. Dane Sinclair. Mr. John Ferguson, a director of the company, has been appointed vice-chairman.

Mr. Charles Pinkham, manager of the publicity organisation of the General Electric Co., Ltd., is to give an address on "The Services expected from a Trade Journal," at the annual convention of the Advertising Association to be held at Hastings from June 21 to 25. Mr. Pinkham will speak on Tuesday afternoon, June 24.

Mr. Frank D. Newbury, manager of the Power Engineering Department, Westinghouse Electric and Manufacturing Co., East Pittsburgh, U.S.A., is attending the second World Power Conference at Berlin, and has read a paper on "Economic Limits to Large Water Wheel Driven Generators." He will spend over two months in Europe.

Mr. Francis Hodgkinson, consulting mechanical engineer, Westinghouse Electric and Manufacturing Co., is attending the World Power Conference and a meeting of the International Electro-Technical Commission. Mr. Hodgkinson joined the Westinghouse Company in 1896, having previously spent several years with C. A. Parsons and Co., Ltd.

Mr. G. J. Rackham, chief engineer of the Associated Equipment Co., left Liverpool on June 13 for a visit to Canada and America. His object is to study the latest trends in design and automotive practices. Mr. Rackham will be away for about six weeks, and will call on omnibus operators and commercial vehicle manufacturers in Montreal, Toronto, Detroit, Chicago, and New York.

We regret to record the death of **Mr. P. J. Pringle,** which took place on June 10 at Zurich, Switzerland. Mr. Pringle, who was chief engineer and general manager of the Electric Supply Co. of Victoria, Ltd., was proceeding on a holiday visit to this country, and accompanied by Mrs. Pringle had travelled via Spain and France. Mr. Pringle, who was in his 60th year, received his electrical training at the old school of electrical engineering in Hanover-square, London, and after serving a pupilage at locomotive works in Glasgow he was associated for a time with Professor G. Forbes in electrical research work. He subsequently occupied various important positions in electrical engineering and consulting work. His last appointment in this country was that of borough electrical engineer and tramway manager at Burton-on-Trent. This position he resigned to take charge of the systems of the Electric Supply Co. of Victoria, Ltd., at Ballarat and Bendigo.

CONTRACTS.

Crossley Motors, Ltd.—The repeat order recently received by Crossley Motors, Ltd., from York Corporation was for three 70 h.p. Crossley Eagle omnibuses.

Plymouth Corporation has accepted the tender of Edgar Allen and Co., Ltd., for points with spring mechanism, and of the Titan Trackwork Co., Ltd., for crossings.

Sydney (N.S.W.) City Council have accepted the tender of Johnson and Phillips, Ltd., for heavy power cable. The amount of the contract is approximately £30,000.

Rotherham Tramways Committee's contract with Chas. H. Roe (1923), Ltd., for a supply of omnibus bodies at the price quoted did not include the item of "extras," as was stated previously. The price was a special price for long date delivery.

Digitized by Google

Maley & Taunton, Ltd., of Wednesbury, have received a contract from Edinburgh Corporation Tramways for 25 equipments for the Maley-Taunton New System Air and Magnetic Brakes.

The Vulcan Motor & Engineering Co., Ltd., have received an order for a 32-seat omnibus for the Office of Works. They are supplying refuse vehicles to a number of local authorities, and a six-cylinder ambulance chassis to Glasgow Education Authority.

Portsmouth Corporation received the following tenders for automatic traffic signals, the first being accepted: Forest City Electric Co., £140; Barber & Colman, £144; Equipment and Engineering Co., £152 10s.; Siemens and General Electric Railway Signal Co., £159 16s. 9d.

The English Electric Co. has received an important contract from the Central Electricity Board for transformers for the Mid-East England scheme. The contract is for 16 units totalling 130,000 kVA., and comprises the following: Six 10,000 kVA. 66 kV. transformers, two each for Kirkstall, Harrogate, and York; two 10,000 kVA. 22kV. transformers for Huddersfield; four 7,500 kVA. 33 kV. units, two each for Peterborough and Barnsley; four 5,000 k VA. 33 kV. transformers for Rotherham and Doncaster. Each unit will be complete with the English Electric on-load tap changing gear.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

Name.	Week ended	Latest Return. 1929	1930	+ or −	Aggregate. Wks	1930	+ or −
		£	£	£		£	£
Aberdare U.D.C.	June 17	585	619	+ 34	11	6,478	— 83
„ Motor Buses	„ 17	270	338	+ 68	11	3,204	+ 343
„ Total	„ 17	855	957	+ 102	11	9,682	+ 260
Aberdeen Corp.	„ 11	8,023	8,429	+ 406	1⅑	8,429	+ 406
Ashton-u-Lyne Corp.	„ 7	892	846	— 46	10	8,526	— 633
„ Motor Buses	„ 7	469	485	+ 16	10	5,014	+ 9
„ Trolley Buses	„ 7	273	263	— 10	10	2,097	— 145
„ Total	„ 7	1,634	1,594	— 40	10	16,237	— 769
Ayr Corporation	„ 14	570	548	— 22	4	2,330	— 176
Barrow Corporation	„ 14	628	680	+ 52	11	6,235	— 516
„ Motor Buses	„ 14	342	516	+ 174	11	4,205	+ 800
„ Total	„ 14	970	1,196	+ 226	11	10,440	+ 374
Belfast City	June 13	11,500	11,741	+ 241	10½	123,476	+ 5,180
„ Motor Buses	„ 13	1,055	1,353	+ 298	10½	14,569	+ 3,033
„ Total	„ 13	12,555	13,094	+ 539	10½	138,045	+ 8,213
Birkenhead Corp.	„ 8	1,658	1,676	+ 18	10	15,739	— 1,125
„ Motor Buses	„ 8	3,283	3,896	+ 613	10	33,900	+ 1,767
„ Total	„ 8	4,941	5,572	+ 631	10	49,639	+ 642
Birmingham Corp.	„ 10	26,912	28,739	+ 1,827	10	272,408	— 885
„ Motor Buses	„ 10	12,524	16,927	+ 4,403	10	155,824	+ 30,772
„ Trolley Buses	„ 10	553	558	+ 5	10	5,710	+ 233
„ Total	„ 10	39,989	46,224	+ 6,235	10	433,942	+ 30,120
Blackburn Corp.	„ 11	1,930	2,129	+ 199	10½	19,382	— 1,050
„ Motor Buses	„ 11	Nil	342	+ 342	10½	3,375	+ 3,375
„ Total	„ 11	1,930	2,471	+ 541	10½	22,757	+ 2,325
Bradford Corporation	„ 14	15,787	15,386	— 401	11	153,880	+ 9,324
Brighton Corporation	„ 15	2,624	3,032	+ 408	10⅔	27,529	+ 1,570
Burnley Corporation	„ 14	3,013	3,077	+ 64	...	...	...
„ Motor Buses	„ 14	639	736	+ 97	...	...	...
„ Total	„ 14	3,652	3,813	+ 161	...	...	...
Burton-on-Trent Corp.	„ 15	793	880	+ 87	11	9,296	+ 610
Bury Corporation	„ 15	1,971	1,940	— 31	10⅔	20,295	— 3,164
„ Motor Buses	„ 15	433	1,246	+ 813	10⅔	11,884	+ 7,709
„ Total	„ 15	2,404	3,186	+ 782	10⅔	32,179	+ 4,545
Cardiff Corporation	May 31	7,633	7,591	— 42	8⅔	67,673	+ 1,170
Chatham and District	June 12	1,165	1,367	+ 202	23	25,329	+ 1,269
Chester Corporation	„ 8	421	Nil	— 421	10	Nil	— 4,548
„ Motor Buses	„ 8	Nil	646	+ 646	10	6,418	+ 6,418
„ Total	„ 8	421	646	+ 225	10	6,418	+ 1,870
Chesterfield Corp.	„ 16	1,830	1,940	+ 110	11	20,464	+ 1,012
Colchester Corp.	„ 18	530	593	+ 63	12	6,760	+ 694
Colne Corporation	„ 18	703	690	— 13	11	8,129	+ 61
Coventry Corporation	„ 15	2,049	2,206	+ 157	11	22,795	— 991
„ Motor Buses	„ 15	1,525	2,092	+ 567	11	20,333	+ 3,076
„ Total	„ 15	3,574	4,298	+ 724	11	43,128	+ 2,085
Darlington Corp.	„ 14	981	1,069	+ 88	10⅔	11,367	+ 959
Derby Corporation	„ 14	2,497	2,720	+ 223	11	26,837	— 250
„ Motor Buses	„ 14	709	1,024	+ 315	11	9,943	+ 2,837
„ Total	„ 14	3,206	3,744	+ 538	11	36,780	+ 2,587
Dover Corporation	„ 14	396	449	+ 53	11	4,161	+ 155
Dundee Corporation	„ 10	2,624	2,736	+ 112	3⅔	9,773	— 610
„ Motor Buses	„ 10	895	1,010	+ 115	3⅔	3,405	+ 279
„ Total	„ 10	3,519	3,746	+ 227	3⅔	13,268	— 331
East Ham Corp.	„ 14	2,304	2,413	+ 109	10⅔	25,010	+ 583
Edinburgh Corp.	„ 7	14,268	15,403	+ 1,139	3⅔	52,027	— 550
„ Motor Buses	„ 7	3,426	3,944	+ 518	3⅔	13,206	+ 719
„ Total	„ 7	17,694	19,351	+ 1,657	3⅔	65,233	+ 169
Exeter Corporation	„ 18	856	863	+ 7	12	9,442	— 431
Glasgow Corporation	„ 14	45,644	46,136	+ 492	2	92,544	+ 2,053
„ Motor Buses	„ 14	5,355	8,713	+ 3,358	2	17,472	+ 6,851
„ Total	„ 14	50,999	54,849	+ 3,850	2	110,316	+ 8,904
Gloucester Corp.	„ 11	557	832	+ 275	10⅔	7,231	+ 1,636
Grimsby Corporation	„ 14	1,363	1,719	+ 356	11	16,309	+ 2,040
Halifax Corporation	„ 10	4,458	6,252	+ 1,794	10½	52,973	+ 5,856
Huddersfield Corp.	„ 14	6,421	7,362	+ 941	11	70,027	— 1,623
Hull Corporation	„ 14	5,882	5,941	+ 59	11	63,191	— 457
„ Motor Buses	„ 14	1,323	1,599	+ 276	11	15,475	+ 1,325
„ Total	„ 14	7,205	7,540	+ 335	11	78,666	+ 868
Ilford Corporation	„ 14	1,614	1,609	— 5	10⅔	16,445	+ 476
Ipswich Corp. Trol.Bus	„ 14	1,256	1,431	+ 175	10⅔	14,129	+ 844
Isle of Thanet	„ 11	869	1,172	+ 303	23½	10,799	— 427
Kilmarnock Corp.	„ 14	468	498	+ 30	4⅔	2,119	+ 31
Lancashire Un.	„ 8	2,185	2,143	— 42	22⅔	49,375	— 227
„ Motor Buses	„ 8	4,181	5,268	+ 1,087	22⅔	107,197	+ 15,598
Leeds Corporation	„ 14	20,224	21,884	+ 1,660	10⅔	226,583	+ 6,258
Leicester Corp.	„ 14	8,711	8,740	+ 29	11	91,381	+ 1,950
Lincoln Corp.	„ 15	924	1,048	+ 124	11	10,165	+ 100
Liverpool Corp.	„ 14	30,284	31,882	+ 1,598	10⅔	325,236	+ 4,666
London County Coun.	„ 18	83,580	82,641	— 939	11⅔	943,381	— 2,312
Luton Corporation	„ 11	459	477	+ 18	10⅔	4,503	+ 272
Maidstone Corp.	„ 12	224	Nil	— 224	10⅔	Nil	— 2,655
„ Motor Buses	„ 12	274	296	+ 22	10⅔	2,907	— 11
„ Trolley Buses	„ 12	292	641	+ 349	10⅔	6,635	+ 3,404
„ Total	„ 12	790	937	+ 147	10⅔	9,542	+ 738
Manchester Corp.	„ 7	35,090	32,933	— 2,166	10	317,096	— 25,903
„ Motor Buses	„ 7	4,810	8,762	+ 3,952	10	82,383	+ 34,150
„ Total	„ 7	39,909	41,695	+ 1,786	10	399,479	+ 8,247
Middlesbrough Corp.	„ 10	1,086	1,110	+ 24	10⅓	10,872	— 655
„ Motor Buses	„ 10	505	642	+ 137	10⅓	5,729	+ 619
„ Total	„ 10	1,591	1,752	+ 161	10⅓	16,601	— 36

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS—*Continued.*

Name.	Week ended	Latest Return. 1929	1930	+ or −	Aggregate. Wks	1930	+ or −
		£	£	£		£	£
Newcastle-on-Tv Corp.	June 14	10,231	8,483	— 1,748	10⅔	93,244	— 10,521
„ Motor Buses	„ 14	1,995	3,362	+ 1,367	10⅔	28,584	+ 6,707
„ Total	„ 14	12,226	11,845	— 381	10⅔	121,828	— 3,814
Newport Corporation	May 31	1,693	1,561	— 132	9	14,310	— 293
„ Motor Buses	„ 31	738	761	+ 23	9	7,186	+ 541
„ Total	„ 31	2,431	2,322	— 109	9	21,496	+ 248
Northampton Corp.	June 13	1,069	1,196	+ 127	10⅔	11,868	— 328
„ Motor Buses	„ 13	670	824	+ 154	10⅔	7,821	+ 1,274
„ Total	„ 13	1,739	2,020	+ 281	10⅔	19,689	+ 946
Nottingham Corp.	„ 12	6,686	6,359	— 327	10⅔	60,607	— 8,686
„ Motor Buses	„ 12	2,309	3,594	+ 1,285	10⅔	34,183	+ 10,557
„ Trolley Buses	„ 12	596	1,297	+ 701	10⅔	12,609	+ 6,352
„ Total	„ 12	9,591	11,250	+ 1,659	10⅔	107,399	+ 8,223
Oldham Corporation	„ 14	3,551	3,428	— 123	12	40,557	— 2,502
„ Motor Buses	„ 14	2,007	2,264	+ 257	12	24,159	— 161
„ Total	„ 14	5,558	5,692	+ 134	12	64,716	— 2,663
Plymouth Corp.	„ 14	3,612	3,754	+ 142	10⅔	38,915	— 558
„ Motor Buses	„ 14	1,835	2,516	+ 681	10⅔	25,458	+ 5,456
„ Total	„ 14	5,447	6,270	+ 823	10⅔	64,373	+ 4,898
Portsmouth Corp.	„ 14	6,279	8,770	+ 2,491	11	75,332	+ 10,890
Preston Corporation	„ 11	1,688	1,895	+ 207	10⅔	17,306	— 710
„ Motor Buses	„ 11	466	614	+ 148	10⅔	5,343	+ 381
„ Total	„ 11	2,154	2,509	+ 355	10⅔	22,649	— 329
Rawtenstall Corp.	„ 8	844	617	— 227	9⅔	6,898	— 1,722
„ Motor Buses	„ 8	541	704	+ 163	9⅔	6,862	+ 1,630
„ Total	„ 8	1,385	1,321	— 64	9⅔	13,760	— 92
Reading Corporation	„ 12	1,534	1,721	+ 187	11	15,130	— 490
„ Motor Buses	„ 12	898	1,461	+ 563	11	10,852	+ 1,158
„ Total	„ 12	2,432	3,182	+ 750	11	25,982	+ 668
Rochdale Corp.	„ 14	3,005	2,987	— 18	...	30,266	— 2,635
„ Motor Buses	„ 14	1,543	1,850	+ 307	...	17,360	+ 850
„ Total	„ 14	4,548	4,837	+ 289	..	47,626	— 1,785
Rotherham Corp.	„ 16	2,557	2,942	+ 385	11	31,049	+ 1,888
Salford Corporation	„ 15	10,973	11,969	+ 996	10⅔	124,085	+ 2,939
Sheffield Corp.	„ 14	21,035	21,822	+ 787	10⅔	229,280	+ 489
Southampton Corp.	„ 11	3,378	3,915	+ 537	11	35,157	+ 528
„ Motor Buses	„ 11	785	968	+ 183	11	9,094	+ 1,794
„ Total	„ 11	4,163	4,883	+ 720	11	44,251	+ 2,322
Southend-on-Sea Corp.	„ 18	2,270	2,228	— 42	11⅔	22,818	— 751
„ Motor Buses	„ 18	167	311	+ 144	11⅔	3,072	+ 1,423
„ Total	„ 18	2,437	2,539	+ 102	11⅔	25,890	+ 672
Southport Corp.	„ 14	1,304	1,686	+ 382	10⅔	13,953	— 84
„ Motor Buses	„ 14	362	585	+ 223	10⅔	4,397	+ 499
„ Total	„ 14	1,666	2,271	+ 605	10⅔	18,350	+ 415
St. Helens Corp.	„ 10	1,868	2,393	+ 525	10⅓	20,820	+ 1,711
Sunderland Corp.	„ 17	2,467	2,581	+ 114	11	27,429	+ 1,134
„ Motor Buses	„ 17	215	537	+ 322	11	5,376	+ 4,348
„ Total	„ 17	2,682	3,118	+ 436	11	32,805	+ 5,482
Swindon Corp.	„ 11	732	1,248	+ 516	10⅔	10,196	+ 2,679
Wallasey Corp.	„ 14	1,375	1,609	+ 234	10⅔	13,367	— 921
„ Motor Buses	„ 14	2,201	3,108	+ 907	10⅔	24,317	+ 2,912
„ Total	„ 14	3,576	4,717	+ 1,141	10⅔	37,684	+ 1,991
Walsall Corporation	„ 8	3,225	3,602	+ 377	10	35,079	+ 721
Walthamstow Corp.	„ 14	2,518	2,887	+ 369	10⅔	26,834	+ 107
Warrington Corp.	„ 12	885	925	+ 40	11	9,803	+ 72
„ Motor Buses	„ 12	447	519	+ 72	11	5,453	+ 620
„ Total	„ 12	1,332	1,444	+ 112	11	15,256	+ 692
West Ham Corp.	„ 12	5,926	6,545	+ 619	10⅓	65,048	+ 1,929
Wolverhampton Corp							
„ Motor Buses	„ 8	2,588	2,517	— 71	10	24,052	— 4,479
„ Trolley Buses	„ 8	3,256	3,610	+ 354	10	35,167	+ 2,152
„ Total	„ 8	5,844	6,127	+ 283	10	59,219	— 2,327
York Corporation	„ 11	[illegible]	1,285	+ 289	11	10,828	+ 596
„ Motor Buses	„ 11	356	568	+ 212	11	5,266	+ 1,464
„ Trolley Buses	„ 11	63	Nil	— 63	11	Nil	— 483
„ Total	„ 11	1,415	1,853	+ 438	11	16,094	+ 1,577

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

Name.	Week or M'th.	Latest Return. 1929	1930	Aggregate. Wks. or *M*	1930	In. or Dec.
Anglo-Argentine	June 17	£83,878	£85,174	24 w	£2,026,298	— £80,141
Brazilian Traction $	Apr.	4,042,145	4,127,492	4 m	15,835,315	+ 216,078
British Columbia $	Apr.	1,205,482	1,213,903	10 m	12,324,706	+ 575,871
Buenos Aires Lacroze	June 15	12,222	11,349	50 w	580,731	— 42,523
Burma E. Sup. Co. Rs.	Apr.	64,744	65,482	9 m	577,208	— 22,269
Calcutta ... Rs.	June 14	123,085	104,416	23½ w	2,719,918	— 315,441
Cape Town ...	May	29,366	27,286	...	...	...
Carthagena & Herrerias	May	725	552	5 m	5,097	+ 752
Durban ...	Apr.	25,603	24,002	9 m	214,538	— 141
East India ...	May	3,892	3,698	10 m	37,824	+ 407
Kalgoorlie ...	Mar.	1,682	1,710	3 m	4,601	— 45
Madras (2 weeks) Rs.	June 15	45,117	46,216	22 w	506,455	+ 29,057
Para ...	May	15,182	15,568	6 m	88,779	+ 1,171
Port Elizabeth ...	May	7,801	7,552	...	...	...
Rangoon ... Rs.	May	121,040	149,440	5 m	757,465	+ 163,189
Shanghai ... $	May	339,833	183,409	5 m	1,555,971	— 74,189
Singapore ... ...$	May	133,000	148,000	8 m	1,083,000	+ 123,000
Winnipeg ... $	Apr.	536,033	516,132	4 m	2,283,837	— 3,549

RAILWAY RECEIPTS.

24rd Week ended June 15th*	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week.	Inc. or Dec. to Date.
G.W.R.	285,000	+ 28,000	236,000	— 134,000	521,000	— 106,000	— 438,000
L.M.S.R.	605,000	+ 55,000	503,000	— 275,000	1,168,000	— 220,000	—1,353,000
L.N.E.R.	429,000	+ 65,000	515,000	— 174,000	944,000	— 109,000	— 633,000
S.R.	384,000	+ 43,000	87,000	— 22,000	471,000	+ 21,000	— 82,000
Totals	1,703,000	+ 191,000	1,401,000	— 605,000	3,104,000	— 414 000	—2,506,000

*Whit-Monday Week.

ELECTRIC RAILWAYS.

Name.	Week Ended.	Latest Return. 1929.	1930.	+ or −	Aggregate. 1930.	+ or −
London Underground Common Fund Cos.	June 14	304,100	346,900	+ 42,800	7,164,000	+ 494,900
Lond. & Sub. Group	„ 14	44,900	53,000	+ 8,100	1,043,100	+ 86,900
Metropolitan Railway	„ 14	36,300	38,800	+ 2,500	882,000	+ 24,900
Liverpool Overhead	„ 15	1,632	1,817	+ 185	36,228	— 1,969
Mersey Railway	„ 14	4,019	4,390	+ 371	111,702	+ 3,735

Digitized by Google

THE
Tramway AND Railway World
FOUNDED IN 1892.

OFFICES:—AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.

Telephone: TEMPLE BAR 2948.
Telegraphic Address: "TRAMIGRO, ESTRAND, LONDON."

THE TRAMWAY AND RAILWAY WORLD can be obtained at the following rates:
FOR THE UNITED KINGDOM—Twenty-five shillings per annum.
FOR ALL PLACES ABROAD—Twenty-five shillings per annum. Postage to Canada, 6s.; to other places abroad, 9s. 6d.

THE ANNUAL SUBSCRIPTION INCLUDES 64 ISSUES, OF WHICH 12 ARE ILLUSTRATED NUMBERS

LONDON, JUNE 28, 1930.

SPEED MUST ACCOMPANY COMFORT.

Numerous tramway undertakers are transforming the seating, lighting, and ventilation of the cars, but these steps are not sufficient to make a car the acme of what a public conveyance should be, or to secure the return of passengers whose custom has been transferred to other vehicles. It is useless, too, for cars to be transformed into a poor imitation of a luxury vehicle. Passengers expect something better than the old seats covered with an inch of padding and cloth, and they prefer the transverse seat to the longitudinal bench. The reason for that preference is the dual one of more comfortable riding and of privacy. A more important desideratum is a higher speed than the leisurely average of six to eight miles an hour. Even London's ten miles is not sufficient in view of the fact that omnibuses are permitted to run at 20 m.p.h., without any restriction for different thoroughfares, as is the case with the tramcar. Frequently the omnibus will register up to 30 m.p.h., the figure to which its speed is to be raised under the Road Traffic Bill. Moreover, a strong effort is to be made to obtain an extension to 35 m.p.h. when the Bill comes up for final consideration before the close of the present session. It would be fatal to all hopes of progress if tramway operators did not attempt to secure an increase to at least 30 m.p.h., or to whatever limit is ultimately permitted to the petrol-driven machines. Failure to secure equality of treatment will stamp the tramcar as an obstructive vehicle, for if traffic is to flow smoothly, its chief units must move at an equal speed. Certainly no vehicle can travel more safely at high speed than a tramcar. Confined as it is to a track, all other drivers know that it cannot deviate, and if these drivers possessed any road sense they would cease to utter the parrot cry that they never know when a tramcar is going to stop. These critics are blind to the existence of the request and compulsory stop standards or signs. It is probably because of the uncertainty existing on the question of the attitude of the Ministry of Transport to a higher speed for tramcars that many undertakings have delayed fitting more powerful motors. New motors will enable cars to make more journeys in a day, and will lead to brisker business in several departments of the manufacturing side of the industry. The regeneration of the tramcar will bring extra passengers, not only at peak hours, but also during the slack periods, particularly if the attention of the housewife is drawn by advertising to the comfortable facilities. Ultimately more cars will be required, which will mean work for body and truck builders, makers of electrical equipments, etc. No time should, therefore, be lost in appealing to the Ministry of Transport to permit higher speeds. A good example was set a few years ago by Liverpool Corporation when it applied for and obtained increased speeds on certain sections of line up to 30 m.p.h., which enabled the department enormously to increase its mileage. The limit has therefore by no means been reached; for on other sections the speed might still be further increased. The annual mileage reached has gone from 15,731,411 in the year ended March 31, 1923, to 21,146,625 in 1929, a total increase in six years of 5,415,214, a performance highly creditable to the management. With such enterprise in the past there is every reason to anticipate a further improvement in speed. No doubt this will be affected, and another addition made to the annual mileage.

MR. W. CHAMBERLAIN AWARDED DAMAGES.

CHIEF JUSTICE CONDEMNS BULLYING BY INDIVIDUAL COUNCILLORS.

In the King's Bench Division of Northern Ireland, on June 18, a verdict for the plaintiff, with £100 damages, was returned by the jury in an action brought by Mr. William Chamberlain, general manager of the Belfast Corporation Tramways and Omnibuses, against Alderman W. H. Alexander.

Plaintiff alleged that defendant libelled him in a letter to the newspapers which referred to Corporation omnibuses as having been put off the streets by the police on the ground of mechanical unfitness. It was further alleged by plaintiff that gross negligence had been attributed to him in the discharge of his duties as general manager.

The hearing occupied three days, and the Lord Chief Justice, in the course of his summing up, said the tramways manager could not carry on if he was to be bullied by individual members of the Council. He disapproved of the Alderman's action in going to a foreman and trying to make the man directly responsible to him. The statements made by the defendant could not be justified. On the question of damages, the plaintiff had suffered by being attacked in his character. He was accused of having omnibuses under his control which were a crime against the citizens to have on the road. For that he ought to get reasonable damages which would enable him to clear his character. The jury would be very wrong if they gave small damages, and he thought they should not give a less sum than £50, so that it could not be said the damages were contemptuous.

The jury answered the questions left to them as follows: (1) Do the words complained of refer to the plaintiff as tramway manager? Yes. (2) Do the words mean that plaintiff has been guilty of gross negligence in the discharge of his duties as tramway manager and had imperilled the lives and limbs of thousands of citizens? Yes.

The jury awarded the sum of £100 as damages.

SOUTHAMPTON TRAMWAYS DEFENDED.

Alderman P. V. Bowyer, J.P., chairman of Southampton Tramways Committee, speaking at a ratepayers' meeting at Woolston, made a spirited defence of the tramway system. He was so convincing that Mr. Tremellin, the mover of a vote of thanks, said that he came to the meeting as an enemy of the tramways, but the Alderman had changed his views completely in their favour.

Alderman Bowyer said he had been informed by Councillor Brighton, who had just returned from a tour in the north of England, that he had never seen finer kept tramcars, more efficient service, cheaper fares, or a better run system than that of Southampton. During the eight years he had been chairman, said Alderman Bowyer, the tramways undertaking had given £56,000 in relief of the rates, and they paid £7,000 a year as ratepayers. Their net surplus for the past year was £24,000, of which £10,000 went in relief of the rates. In 1928 they lost £2,000 on their omnibuses, and last year they lost £3,000. Wherever they ran a tramway they paid practically two-thirds of the cost of the road upkeep, and if omnibuses were substituted that cost would be thrown on the rates. The Committee was quite open-minded on the question, and they had applied for powers to run trolleybuses on a certain route. There was a future not only for the tramways and omnibuses, but also for trolleybuses. He did not think the tramcars would be taken off the roads in Southampton for many years yet.

Digitized by Google

WOLVERHAMPTON CORPORATION TRANSPORT.

The gross profits for the year ended March 31 last on the trolleybus account was £75,271, and on the motor omnibus account £26,236, a total of £101,507. After debiting interest on capital, repayment of loans, and reserve for income tax, there is a net profit of £14,379, which has been appropriated as follows: Acceleration of repayment of tramway debt, £11,078; reserve fund, £3,300. The report covers the first complete year of the operation of trolley and motor omnibuses throughout the whole district formerly served by tramcars, and the Committee state that they are satisfied that the change has been beneficial from all points of view. At March 31, 1930, the department was operating sixty-six trolleybuses and sixty-nine motor omnibuses, of which, roughly, about one-half were six-wheel vehicles. The report contains several interesting charts showing the growth of the undertaking during twenty-seven years, and giving a comparison of the costs of trolley and motor omnibuses. The following particulars are from the report:—

	Trolley Vehicles.	Motor Omnibuses.
Mileage	2,419,762	2,251,607
Passengers carried	23,175,998	16,522,399
Total number of units used for traction and vehicle lighting	3,663,663	—
Number of units per vehicle mile	1.514	—
Average number of vehicles in use per day	45	51
Percentage of working expenses to total revenue	58.15%	80.38%
Average traffic revenue per vehicle mile	17.722d.	15.172d.
Average total revenue per vehicle mile	17.847d.	15.3d.
Average miles per day per vehicle	148	122
Average speed per hour	9.436	8.607
Vehicle hours	256,450	261,603
Total working expenses per vehicle mile	10.380d.	12.299d.
Average fare charged per mile	1.171d.	1.196d.

MISCELLANEOUS NEWS AND NOTES.

The Harrogate Conference.—The annual conference of the Municipal Tramways and Transport Association will be held at Harrogate from September 24 to 26.

Road Traffic Bill.—The Prime Minister stated in the House of Commons on Wednesday that the Road Traffic Bill would be among the Bills which it is desired to pass before the end of the present session.

Transport at Middlesbrough.—The Tramways Committee of Middlesbrough Corporation is preparing a report on the means of transport to be adopted when Stockton's period of running the tramways ends.

Safety First at Southport.—Eighty out of eighty-nine drivers of Southport Corporation tramcars and omnibuses qualified for the diploma of the National Safety First Association during the year ended March 31 last.

Conductor Complimented on First Aid.—Bradford Tramways Committee on Monday complimented Conductor F. Tarpey, of the Clayton section, on excellent first aid rendered to a passenger who fell and fractured a leg.

Women Tramcar Conductors in Russia.—Several thousand tramcar conductors are to be dismissed, and their jobs given to women, says a British United Press message from Moscow. The men are to be drafted into industry.

A Birmingham Replacement.—Birmingham Tramways Committee has decided that shortly before the August bank holiday a service of omnibuses shall be run along the Hagley route, and these vehicles will replace the tramway.

Fares and Relief Work.—Swansea Corporation Electricity Committee has approached the Unemployment Grants Committee with a view to obtaining sanction to pay the tramway fares of men engaged on unemployment works.

Tramways as Mail Carriers.—A committee of the Postal Department of Victoria is considering the use of the Melbourne tramways as an auxiliary mail transport, with the object of giving a more rapid and frequent mail service to the suburbs.

Cost of Removing Tramway Rails.—The removing of the tramway track on the Gorleston section of the Great Yarmouth Corporation Tramways, which is to be replaced by omnibuses, is to cost £13,709. An effort is being made to obtain a grant for reinstating the roadway.

L.M.S. Buys Half an Omnibus Service.—Huddersfield town clerk has reported that the agreement for the sale of one-half interest in the Corporation omnibus undertaking to the London Midland and Scottish Railway Co. has been completed, and the purchase money paid.

Southern Railway Suburban Electrification.—On and after July 6 three more suburban areas of the Southern Railway will be operated electrically. These extensions—Hounslow and Whitton to Windsor, Dartford to Gravesend, and Wimbledon to Croydon—complete a total of 800 miles of electric lines.

Speedometers for Tramcars Suggested.—Following an inquiry into the death of two men who were killed in a tramcar accident at Glasgow, the jury recommended that speedometers should be fitted on all tramcars and that precautions should be taken to enforce the regulations regarding stopping places.

Southend Tramcar Tours.—An admirable illustrated poster has been issued describing the circular tour that can be made by tramcar via the Thorpe Bay and Southchurch boulevards of the Southend tramways. The cars depart in summer every ten minutes and in winter every twenty minutes from Warrior-square.

Australian Petrol Tax Deferred.—A "Times" telegram reports the Premier of New South Wales as having stated that, owing to disagreement between the States, the Federal Government had intimated that it is not imposing a petrol tax. The proposed tax is to be further considered at the next conference of Premiers.

Hull Transport.—A sub-committee of Hull Corporation Tramways Committee has been appointed to inquire into the increased omnibus routes and present fares. A net profit last year of £9,503 was regarded as unsatisfactory, and it would have been only £2,000 but for lower rates due to a reduction in the assessment.

Tynemouth Corporation has appointed a sub-committee to co-operate with the Watch Sub-Committee in dealing with negotiations which are taking place with the Tynemouth and District Traction Co. in connection with the suggested abandonment of the tramways within the borough, with special reference to the reinstatement of roads.

Improvements at Nottingham.—Nottingham Corporation Transport Department is substituting upholstered transverse seats on the lower deck of their tramcars, and rubber flooring is to be used. Mr. W. G. Marks (general manager) states that the success of the trolleybus service between Wells-road and Wilford Bridge is well established.

£12,000,000 More for Roads.—At an interview with representatives of local authorities on Wednesday, Mr. H. Morrison (Minister of Transport) stated that the Government will extend the grants for trunk road improvements and reconstruction so that the total expenditure may be £21,000,000, instead of the £9,000,000 limit fixed last July.

North-East Coast Regional Committee.—An Advisory Committee on Traffic, with Councillor P. McArdle, of Wallsend, as chairman, has been formed for the North-East Coast. Its functions will include the making of representations with the object of eliminating overlapping and unnecessary services, co-ordinating services and ensuring better control.

Royal Commission on Transport.—When the Commission's sittings were resumed on Wednesday evidence was given on behalf of the Long Distance Road Haulage Committee of Inquiry. In a report submitted by Sir Maxwell Hicks a proposal was made that the licensing system of public service vehicles should be extended to mechanically propelled road vehicles, including local carmen, which carry goods for profit.

Southport's Outlook in the Event of a Change.—In his annual report to the Tramways Committee, Mr. T. J. Kendrew (general manager) states that the capital expenditure has been paid off with the exception of £37,256, and there is £28,067 in the renewals fund and £4,961 in the appropriation account. Therefore, any change in the methods of transport which may be adopted will not have to bear any great debt that belonged to the tramways.

Discount Tickets.—The reintroduction of a comprehensive system of tramway discount tickets is being urged in Burnley. The system was in force before the war, and a book of twelve 1d. tickets could be purchased for 10d. Workmen's tickets are available for certain artisans and wage earners, but a wage limit has been fixed prohibiting the use of discount facilities by those whose wages exceed the limit. It is urged that the restriction should be removed.

Russian Electric Locomotives.—In connection with the proposed electrification of Russian railways, the Glavelektro chief electrical department is organising the production of electric locomotives, light and heavy types. The plan, says a Moscow journal, is to be put into effect this year, on a basis to ensure the delivery of fifteen electric locomotives in 1930-31, the rate of production to be accelerated up to 55 units per annum. Each locomotive will be fitted with six 400 h.p. motors.

Marking Inquiry into Motor Vehicles, etc.—The Standing Committee appointed by the Board of Trade under the Merchandise Marks Act, 1926, has postponed to September or October the inquiry which was to have been held on July 7 as to whether the following classes of imported goods should be required to bear an indication of origin: motor cars, vans, lorries, chassis and bodies; internal combustion engines of all descriptions, driven by spirit; chassis parts; magnetos, batteries and ignition plugs.

Johannesburg Tramcar and Track Renewals.—Mr. A. T. Rodwell (general manager of Johannesburg Electricity Department) reports that 54 of the 200 tramcars are in such a bad state of repair that they will have to be largely reconstructed. He suggests earmarking £8,000 in the next financial year for building twelve new cars, upon which work has already been started. He also recommends track renewals at a cost of £24,300, and states that £8,000 per annum will have to be voted for a number of years for that purpose.

Derby's Transport Problems.—At a recent meeting of the Derby Watch and Estates Committees, expert witnesses gave evidence in regard to Derby's traffic problem. Mr. W. P. Bancroft (tramways manager) detailed various suggestions which had been made for speeding-up the services by the substitution of omnibuses, either trolley or petrol, for tramways. He pointed out that traffic congestion was serious, and alluded to the advantages of using a vehicle that could draw up to the kerb. Another conference will be held, when the chief constable and other officials are expected to give evidence.

Trolleybus Protection Against Competition.—Torquay and Paignton Tramways Bill was before the Unopposed Bills Committee of the House of Commons on Tuesday. The Bill seeks powers to substitute trolleybuses for the tramways. The chairman of the Committee drew attention to the extent of the powers being taken to protect the company against competition. Mr. Swallow (Lees and Co.), Parliamentary agent, replied that a clause of that kind had never been rejected except on opposition, and there was no opposition to it in this case. The Committee agreed in the special circumstances to waive its objection, and the Bill was passed for third reading.

Digitized by Google

New London Tube Subways.—A subway is to be constructed to connect the Bank station of the City and South London Railway with the Monument station of the Metropolitan and District Railways. The distance is about 500 yards. There will be escalators at the station entrance, and short subways into the station, with exits to the street. It is hoped to complete the work by 1932. It is proposed also to join up the British Museum and Holborn stations, which have no underground connection, and are 300 yards apart. A new deep-level station will be constructed.

Cardiff Car Workers' Wages.—Cardiff Tramways Committee considered a complaint from the National Employers' Association of Vehicle Builders that the tramways department was paying from 1d. to 1½d. above the rates fixed by national agreement. The manager said the letter had probably been sent because the department paid painters' helpers the standard rate for labourers employed by the Corporation, which was higher than the rate in Cardiff. Many were cleaners who had transferred to painting, and they were well worth their money. It was decided to continue the present rates.

The Future of Scarborough Tramways.—Scarborough Council has asked the chairman of United Services, Ltd., to secure an extension of the option which he holds for the purchase of the Tramway Company's undertaking, which expired on June 30. The Council propose then to enter into an agreement under which they will buy the tramways, and the United Automobile Services will operate all the transport services. The Corporation will retain the right to require certain services and will also receive a proportion of the profits. A Parliamentary Bill will be promoted to secure the powers.

Manchester Employees' Holidays.—The total number of employees of the Manchester Corporation Transport Department at March 31, 1930, was 7,985. Of these 4,338 were engaged in the traffic department. Some time ago the City Council granted twelve days' holiday with pay to all employees, involving the granting of an additional four days to the majority of the men in the service. The estimated cost of the concession is £10,300 per annum. During the year a five-night week was adopted for approximately 680 shed workers. The same weekly hours were worked in the five nights as were worked in the six, the resulting output of work remaining unchanged. This system, the Committee state, is working satisfactorily.

Salford Accident Inquiry.—The Ministry of Transport, on June 20, held an inquiry into the recent accident, when a Salford Corporation tramcar jumped the points and overturned, causing the death of a woman and injury to 29 passengers. Evidence by several witnesses favoured the theory that the accident was caused by a bolt, which had probably fallen from a passing vehicle, lying on the points. Mr. J. S. D. Moffet, general manager and engineer of the tramways, said that the effect of a bolt in the points was to make a car rise and go on one side; the tyre of the wheel bore marks consistent with the theory of a bolt having lain on the track. Lieut.-Colonel Anderson, who conducted the inquiry, said he would give his decision after compiling a report for the Ministry.

Leeds-Blackpool Omnibus Services.—The Leeds and Huddersfield Corporations having refused to grant licences to a Blackpool company to ply for hire in Leeds and Huddersfield in connection with a daily service to Blackpool, Mr. Carol Romer conducted a Ministry of Transport inquiry on June 23 at Leeds. Armitage & Co., Ltd., proprietors of the "Progress" Services, appealed against the refusals to grant licences for ten omnibuses. The firm began to run omnibuses from Blackpool to West Riding towns about 1925, and subsequently it started a service to the Heavy Woollen District, licences being obtained without trouble. In 1926 the passengers numbered 6,800, and in 1929, 55,806. Throughout the year a service was run twice daily, and since June 1 it had been increased to three times daily. Mr. Proctor (town clerk of Huddersfield) said the Corporation was bombarded with applications in connection with through services throughout the north of England, and was of opinion that the present was not the time to grant licences as there was a Road Traffic Bill before Parliament. Long-distance services should be regulated and co-ordinated by the proposed Area Commissioners. Mr. J. R. Hill, a member of Blackpool Council, said the Watch and Transport Committees were surprised that licences had been refused. The deputy town clerk of Leeds said his corporation considered the services unnecessary, and the Leeds chief constable gave evidence that the route suggested was unsuitable. The decision will be given later.

PERSONAL.

Mr. George Potter, a car conductor of Derby Corporation, has been presented with a framed certificate and a cheque for £10 from the Carnegie Hero Trust in recognition of his heroic efforts to save life in stopping a runaway horse on January 15. He was seriously injured.

Mr. Mackenzie L. Hill, a Nottingham Corporation tramway motorman, has been appointed a licentiate of the Royal Academy of Music. Mr. Hill recently passed successfully an examination of the Academy; he is a member of the newly-formed Corporation Transport Orchestra.

Mr. G. B. Milford (manager of the Johannesburg tramways) has, on the recommendation of the General Purposes Committee and confirmed by the City Council, been retired as from May 31 owing to a pending reorganisation of the department. There was a keen debate in the Council on the treatment of Mr. Milford, who was paid six months' salary in lieu of notice, and it is also understood that he will receive a pension of about £60 per month.

FINANCIAL.

L.C.C. Tramway Receipts.—The traffic receipts for the week ended June 25 amounted to £82,261, a decrease of £1,405 compared with the corresponding week of last year. The route length was 165.60 miles, as compared with 166.29 a year ago. From April 1 (the commencement of the financial year) to June 25 (12 2-7 weeks), the total receipts were £1,026,064, a decrease of £3,720.

Municipal Transport Receipts.—Official returns of forty of the principal municipal tramway and omnibus undertakings in the United Kingdom for the week ended June 7 give total receipts of £442,088, or £28,323 more than in the corresponding week of last year. The aggregate receipts for ten weeks amounted to £4,191,643, an increase of £85,220 over the corresponding period of last year.

Leicester City Council has adopted the recommendation of the Tramways Committee that out of its profit of £25,444 for the last financial year, £8,619 be carried to the reserve fund and that the remainder should be used for the purposes of new omnibuses and tramcar motors. Alderman G. Banton (chairman of the Tramways Committee) has stated that 320,000 gallons of petrol were used last year at a cost of £8,000 more than in the previous year, owing to the rise in price. If this increase had not taken place there would have been a profit of £4,000. "The more we depend on omnibuses," said Alderman Banton, "the greater the possibility of a rise in petrol. With electricity, the greater the demand the cheaper the supply—hence we are sticking to our tramways."

A Successful Year at Leeds.—Mr. R. L. Horsfield, general manager, Leeds Tramways Department, reported to the Tramways Committee on June 25 that the profit on the undertaking for the last financial year was £57,000. This sum will be available for the relief of rates. The total income of £1,045,275 constitutes a record, and is an increase of £38,287 on the previous year. The cars and omnibuses carried 170,000,000 passengers over 15,000,000 vehicle miles. The receipts per vehicle mile show a slight decrease, the average being 16.3d. per mile. Deducting £770,000 for working expenses, there is a gross profit of £274,000. After making provision for interest on loans and other standing charges, the net profit is £57,000. The receipts from omnibuses amounted to £106,000, and the vehicles carried 13,300,000 passengers, an increase of 2,500,000. Omnibus services are being utilised to open up routes which cannot be expected to pay for some time to come, but the Committee is continuing with this policy in order to provide an adequate service to all parts of the city.

The General Electric Co.—Sir Hugo Hirst, presiding at the meeting of the company on June 25, expressed his satisfaction at the substantial progress. In a year full of shocks the trading account showed a profit of £1,179,000, an increase of over £90,000 compared with the previous year. The company had successfully undertaken the manufacture of turbo-alternators up to 30,000 k.w., having a speed of 3,000 r.p.m. Progress in electric traction had been rapid. The company had a contract for the Manchester-Altringham section of the L.M.S. and L.N.E. Railways, the first order ever placed in this country for equipment for trains operating at 1,500 volts. Other traction contracts included equipment for the new tube railway of the Buenos Aires Central Terminal system and Diesel electric locomotives for India. The company's position in the traction field was indicated by a contract for 1,000 motors which the London Electric Railway had placed with it. Having spoken of the success during the past year, Sir Hugo said he could not conclude without a note of warning. The ratio of increase was dropping from month to month. He was not despondent, but he realised the unhappy conditions existing in some of our older industries. The terrible problem created by the unemployment of nearly 2,000,000 people meant that, with their dependants, 8,000,000 of our population had to live on unemployment insurance, reducing their purchasing power to a minimum. He realised the effect that the terrible taxation to which we are subjected must have and its effect on industry. Resolutions providing for a dividend of 10 per cent. per annum and a bonus of 4 per cent. (both less income tax) on the ordinary shares were agreed to.

CONTRACTS.

Hackney Works Committee has recommended the acceptance of the tender of John I. Thornycroft & Co., Ltd., for the supply of a 5-ton lorry.

The Daimler Co., Ltd., has received an order from the Lanarkshire Traction Co. for 50 Daimler CF6 single-deck saloon omnibuses. The bodies will be supplied by the Hoyal Body Corporation, Ltd. The vehicles will be put into service during July, and will be used by the Lanarkshire Traction Co., on services totalling between 3½ to 4 million miles per annum.

John I. Thornycroft & Co., Ltd., have recently received orders for motor vehicles from a number of American railways and an order for 53 rigid six-wheel chassis from the Indian Government. The London & North-Eastern Railway has ordered 43 motor vehicles. The Bolivar Railways have been experimenting with the use of Thornycroft lorries as feeders to railway services, and have reported successful results. Orders for passenger vehicles have been placed by the Midland General Omnibus Co., Mitcham Motor Co., Surrey; Queen 'Bus Services, Hants; Venture, Ltd., Basingstoke; and Wolverhampton Motor Services. Chassis, including rigid six-wheelers, have been shipped to North China, Uruguay, Johannesburg, Rio de Janeiro, Buenos Aires, and to Norway for the Norwegian Army.

Digitized by Google

Morecambe Tramways Committee has purchased a Maudslay 32-seat omnibus.

Siemens Electric Lamps & Supplies, Ltd., have a further contract with H.M. Office of Works for 50,000 vacuum and gasfilled lamps over a period of twelve months.

Guy Motors, Ltd., have delivered to the Londonderry and Lough Swilly Railway a Guy "Conquest" omnibus. The vehicle is fitted with a Guy patent six-cylinder 50-85 h.p. engine.

Birmingham Corporation has placed an order with the Equipment and Engineering Co., Ltd., for another No. 2 rail-grinding machine. This is the second order placed for this type of machine.

Glasgow Transport Committee has accepted the tenders of S. Osborn & Co., Ltd., for semi-elliptic car springs, Thomas Bolton and Sons, Ltd., for copper bonds, and P. & W. McLellan, Ltd., for square black nuts.

Manchester Transport Committee has placed a contract with Crossley Motors, Ltd., for the supply of 30 double-deck omnibuses to supplement the 53 circular route service and to provide an omnibus service in place of the Bradford-road tramways. This route needs renewal, and nearly a mile of it comprises single line and loops.

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS.

Name.	Week ended	Latest Return. 1929	1930	+ or −	Aggregate. Wks	1930	+ or −
		£	£	£		£	£
Aberdare U.D.C.	June 17	585	619	+ 34	11	6,478	— 83
,, Motor Buses	,, 17	270	338	+ 68	11	3,204	+ 343
,, Total	,, 17	855	957	+ 102	11	9,682	+ 260
Aberdeen Corp.	,, 18	5,087	5,498	+ 411	24	13,927	+ 817
Ashton-u-Lyne Corp.	,, 14	915	953	+ 38	11	9,479	— 596
,, Motor Buses	,, 14	491	564	+ 73	11	5,578	+ 82
,, Trolley Buses	,, 14	280	283	+ 3	11	2,981	— 142
,, Total	,, 14	1,686	1,800	+ 114	11	18,038	— 656
Ayr Corporation	,, 21	555	564	+ 9	5	2,894	— 167
Barrow Corporation	,, 14	628	680	+ 52	11	6,235	— 516
,, Motor Buses	,, 14	342	516	+ 174	11	4,205	+ 890
,, Total	,, 14	970	1,196	+ 226	11	10,440	+ 374
Belfast City	,, 20	10,976	12,097	+ 1,121	11½	135,573	+ 6,301
,, Motor Buses	,, 20	1,038	1,365	+ 327	11½	15,934	+ 3,360
,, Total	,, 20	12,014	13,462	+ 1,448	11½	151,507	+ 9,661
Birkenhead Corp.	,, 22	1,630	1,528	— 102	12	18,966	— 1,196
,, Motor Buses	,, 22	3,386	3,587	+ 201	12	41,884	+ 3,099
,, Total	,, 22	5,016	5,115	+ 99	12	60,850	+ 1,903
Birmingham Corp.	,, 17	27,755	26,712	— 1,043	11	299,120	— 1,928
,, Motor Buses	,, 17	13,377	15,566	+ 2,189	11	171,389	+ 32,960
,, Trolley Buses	,, 17	566	529	— 37	11	6,239	+ 195
,, Total	,, 17	41,698	42,807	+ 1,109	11	476,748	+ 31,227
Blackburn Corp.	,, 18	1,950	1,815	— 135	11⅝	21,197	— 1,182
,, Motor Buses	,, 18	Nil	314	+ 314	11¼	3,690	+ 3,690
,, Total	,, 18	1,950	2,129	+ 179	11¼	24,887	+ 2,508
Bradford Corporation	,, 21	14,830	14,436	— 394	12	168,316	— 9,718
Brighton Corporation	,, 22	2,707	2,743	+ 36	11⅞	30,272	+ 1,606
Burnley Corporation	,, 21	2,856	2,620	— 236	...	...	...
,, Motor Buses	,, 21	615	662	+ 47	...	...	...
,, Total	,, 21	3,471	3,282	— 189	...	...	...
Burton-on-Trent Corp.	,, 24	766	903	+ 137	12	10,199	+ 747
Bury Corporation	,, 22	1,953	1,772	— 181	11⅝	22,068	— 3,345
,, Motor Buses	,, 22	429	1,080	+ 651	11½	12,964	+ 8,360
,, Total	,, 22	2,382	2,852	+ 470	11⅝	35,032	+ 5,015
Cardiff Corporation	,, 21	7,594	7,668	+ 74	11⅝	91,919	+ 2,632
Chatham and District	,, 19	1,201	1,185	— 16	24	26,514	+ 1,253
Chester Corporation	,, 22	419	Nil	— 419	12	Nil	— 5,394
,, Motor Buses	,, 22	Nil	648	+ 648	12	7,759	+ 7,759
,, Total	,, 22	419	648	+ 229	12	7,759	+ 2,365
Chesterfield Corp.	,, 23	1,900	1,885	— 15	12	22,349	+ 997
Colchester Corp.	,, 25	536	626	+ 90	13	7,386	+ 786
Colne Corporation	,, 25	678	713	+ 35	12	8,842	+ 96
Coventry Corporation	,, 22	2,075	1,868	— 207	12	24,662	— 1,198
,, Motor Buses	,, 22	1,552	1,708	+ 156	12	22,042	+ 3,233
,, Total	,, 22	3,627	3,576	— 51	12	46,704	+ 2,035
Darlington Corp.	,, 21	950	1,030	+ 80	11⅝	12,397	+ 1,039
Derby Corporation	,, 21	2,478	2,386	— 92	12	29,223	— 343
,, Motor Buses	,, 21	715	905	+ 190	12	10,848	+ 3,027
,, Total	,, 21	3,193	3,291	+ 98	12	40,071	+ 2,684
Dover Corporation	,, 21	403	419	+ 16	12	4,580	+ 171
Dundee Corporation	,, 10	2,624	2,736	+ 112	3⅝	9,773	— 610
,, Motor Buses	,, 10	895	1,010	+ 115	3⅝	3,495	+ 279
,, Total	,, 10	3,519	3,746	+ 227	3⅝	13,268	— 331
East Ham Corp.	,, 21	2,287	2,293	+ 6	11⅝	27,303	+ 621
Edinburgh Corp.	,, 14	14,375	15,361	+ 986	4⅜	67,387	+ 436
,, Motor Buses	,, 14	3,473	4,010	+ 537	4⅜	17,216	+ 1,256
,, Total	,, 14	17,848	19,371	+ 1,523	4⅜	84,603	+ 1,692
Exeter Corporation	,, 25	879	833	— 46	13	10,275	— 477
Glasgow Corporation	,, 14	45,644	46,136	+ 492	2	92,544	+ 2,053
,, Motor Buses	,, 14	5,355	8,713	+ 3,358	2	17,472	+ 6,851
,, Total	,, 14	50,999	54,849	+ 3,850	2	110,316	+ 8,904
Gloucester Corp.	,, 18	542	703	+ 161	11⅞	7,934	+ 1,798
Grimsby Corporation	,, 21	1,358	1,556	+ 198	12	17,926	+ 2,236
Halifax Corporation	,, 17	4,475	5,206	+ 731	11½	58,179	+ 6,587
Huddersfield Corp.	,, 21	6,206	6,275	— 21	12	76,302	— 1,644
Hull Corporation	,, 21	5,807	5,727	— 80	12	68,919	— 538
,, Motor Buses	,, 21	1,337	1,504	+ 167	12	16,980	+ 1,493
,, Total	,, 21	7,144	7,231	+ 87	12	85,899	+ 955
Ilford Corporation	,, 21	1,599	1,542	— 57	11⅝	17,987	+ 403
Ipswich Corp. Trol.Bus	,, 21	1,242	1,316	+ 74	11½	15,445	+ 902
Isle of Thanet	,, 18	1,034	1,006	— 28	24½	11,805	— 455
Kilmarnock Corp.	,, 21	465	525	+ 60	5⅝	2,645	+ 92
Lancashire Un.	,, 15	2,207	2,184	— 23	23⅝	51,559	— 2,268
,, Motor Buses	,, 15	4,236	6,103	+ 1,867	23⅝	113,299	+ 17,473
Leeds Corporation	,, 21	19,580	20,411	+ 931	11⅝	236,994	+ 6,974
Leicester Corp.	,, 21	8,350	8,349	— 1	12	99,731	+ 1,805
Lincoln Corp.	,, 15	924	1,048	+ 124	11	10,165	+ 100
Liverpool Corp.	,, 21	29,921	30,320	+ 399	11⅝	355,557	+ 5,065
London County Coun.	,, 25	83,666	82,261	— 1,405	12¼	1,026,064	— 3,720
Luton Corporation	,, 18	459	441	— 18	11⅞	4,944	+ 254
Maidstone Corp.	,, 12	224	Nil	— 224	10⅔	Nil	— 2,655
,, Motor Buses	,, 12	274	296	+ 22	10⅔	2,907	— 11
,, Trolley Buses	,, 12	292	641	+ 349	10⅔	6,635	+ 3,404
,, Total	,, 12	790	937	+ 147	10⅔	9,542	+ 738
Manchester Corp.	,, 21	35,681	32,522	— 3,159	12	380,433	— 34,031
,, Motor Buses	,, 21	5,112	8,752	+ 3,640	12	100,896	+ 42,437
,, Total	,, 21	40,793	41,274	+ 481	12	481,329	+ 8,406
Middlesbrough Corp.	,, 17	1,120	1,030	— 90	11⅛	11,902	— 745
,, Motor Buses	,, 17	512	596	+ 84	11⅛	6,325	+ 703
,, Total	,, 17	1,632	1,626	— 6	11⅛	18,227	— 42

TRAMWAYS AND OMNIBUS TRAFFIC RETURNS—*Continued.*

Name.	Week ended	Latest Return. 1929	1930	+ or −	Aggregate. Wks.	1930	+ or −
		£	£	£		£	£
Newcastle-on-Ty.Corp.	June 21	10,248	8,477	— 1,771	11⅝	101,721	— 12,292
,, Motor Buses	,, 21	1,884	3,125	+ 1,241	11⅝	31,709	+ 7,948
,, Total	,, 21	12,132	11,602	— 530	11⅝	133,430	— 4,344
Newport Corporation	May 31	1,693	1,561	— 132	9	14,310	— 293
,, Motor Buses	,, 31	738	761	+ 23	9	7,186	+ 541
,, Total	,, 31	2,431	2,322	— 109	9	21,496	+ 248
Northampton Corp.	June 20	1,044	1,061	+ 17	11⅛	12,929	— 310
,, Motor Buses	,, 20	696	714	+ 18	11⅛	8,535	+ 1,292
,, Total	,, 20	1,740	1,775	+ 35	11⅛	21,464	+ 982
Nottingham Corp.	,, 19	6,585	6,207	— 378	11⅝	66,813	— 9,064
,, Motor Buses	,, 19	2,233	3,401	+ 1,168	11⅝	37,585	+ 11,715
,, Trolley Buses	,, 19	587	1,236	+ 649	11⅝	13,846	+ 7,001
,, Total	,, 19	9,405	10,844	+ 1,439	11⅝	118,244	+ 9,662
Oldham Corporation	,, 21	3,522	3,108	— 414	13	43,665	— 2,916
,, Motor Buses	,, 21	1,935	2,072	+ 137	13	26,231	— 24
,, Total	,, 21	5,457	5,180	— 277	13	69,896	— 2,940
Plymouth Corp.	,, 21	3,702	3,639	— 63	11⅝	42,555	— 621
,, Motor Buses	,, 21	1,864	2,412	+ 548	11⅝	27,870	+ 6,004
,, Total	,, 21	5,566	6,051	+ 485	11⅝	70,425	+ 5,383
Portsmouth Corp.	,, 21	6,399	7,296	+ 897	12	82,631	+ 11,791
Preston Corporation	,, 18	1,694	1,598	— 96	11⅜	18,905	— 806
,, Motor Buses	,, 18	474	495	+ 21	11⅜	5,838	+ 401
,, Total	,, 18	2,168	2,093	— 75	11⅜	24,743	— 405
Rawtenstall Corp.	,, 22	835	632	— 203	11⅞	8,120	— 2,207
,, Motor Buses	,, 22	549	745	+ 196	11⅞	8,389	+ 2,058
,, Total	,, 22	1,384	1,377	— 7	11⅞	16,509	— 149
Reading Corporation	,, 19	1,520	1,454	— 66	12	16,584	— 557
,, Motor Buses	,, 19	926	964	+ 38	12	11,817	+ 1,196
,, Total	,, 19	2,446	2,418	— 28	12	28,401	+ 639
Rochdale Corp.	,, 21	2,923	2,732	— 191	...	32,998	— 2,876
,, Motor Buses	,, 21	1,506	1,544	+ 38	...	18,905	+ 889
,, Total	,, 21	4,429	4,276	— 153	...	51,903	— 1,987
Rotherham Corp.	,, 23	2,534	2,510	— 24	12	33,559	+ 1,864
Salford Corporation	,, 22	11,476	11,014	— 462	11⅛	135,099	+ 2,709
Sheffield Corp.	,, 21	20,910	20,183	— 727	11⅝	249,463	— 238
Southampton Corp.	,, 18	3,443	3,503	+ 60	12	38,660	+ 630
,, Motor Buses	,, 18	822	878	+ 26	12	9,972	+ 1,867
,, Total	,, 18	4,265	4,381	+ 116	12	48,632	+ 2,497
Southend-on-Sea Corp.	,, 18	2,270	2,228	— 42	11⅜	22,818	— 751
,, Motor Buses	,, 18	167	311	+ 144	11⅜	3,072	+ 1,423
,, Total	,, 18	2,437	2,539	+ 102	11⅜	25,890	+ 672
Southport Corp.	,, 21	1,318	1,376	+ 58	11⅝	15,329	— 26
,, Motor Buses	,, 21	370	452	+ 82	11⅝	4,849	+ 581
,, Total	,, 21	1,688	1,828	+ 140	11⅝	20,178	+ 555
St. Helens Corp.	,, 17	1,890	2,024	+ 134	11¼	22,844	+ 1,845
Sunderland Corp.	,, 24	2,351	2,577	+ 226	12	30,006	+ 1,359
,, Motor Buses	,, 24	261	571	+ 310	12	5,948	+ 4,659
,, Total	,, 24	2,612	3,148	+ 536	12	35,954	+ 6,018
Swindon Corp.	,, 18	734	1,023	+ 289	11⅜	11,219	+ 2,969
Wallasey Corp.	,, 21	1,356	1,328	— 28	11⅞	14,695	— 949
,, Motor Buses	,, 21	2,074	2,488	+ 414	11⅞	26,805	+ 3,325
,, Total	,, 21	3,430	3,816	+ 386	11⅞	41,500	+ 2,376
Walsall Corporation	,, 15	3,253	4,168	+ 915	11	39,246	+ 1,635
Walthamstow Corp.	,, 21	2,498	2,572	+ 74	11⅜	29,406	+ 181
Warrington Corp.	,, 19	864	861	— 3	12	10,664	+ 69
,, Motor Buses	,, 19	434	482	+ 48	12	5,935	+ 668
,, Total	,, 19	1,298	1,343	+ 45	12	16,599	+ 737
West Ham Corp.	,, 19	5,890	6,107	+ 217	11⅜	71,155	+ 2,146
Wolverhampton Corp							
,, Motor Buses	,, 15	2,605	3,188	+ 583	11	27,240	— 3,896
,, Trolley Buses	,, 15	3,284	4,326	+ 1,042	11	39,494	+ 3,195
,, Total	,, 15	5,889	7,514	+ 1,625	11	66,734	— 701
York Corporation	,, 18	1,173	1,147	— 26	12	11,976	+ 570
,, Motor Buses	,, 18	374	528	+ 154	12	5,794	+ 1,619
,, Trolley Buses	,, 18	63	Nil	— 63	12	Nil	— 547
,, Total	,, 18	1,610	1,675	+ 65	12	17,770	+ 1,642

FOREIGN AND COLONIAL TRAMWAY TRAFFIC RETURNS.

Name.	Week or M'th.	Latest Return. 1929	1930	Aggregate. Wks. or *M*	1930	In. or Dec.
Anglo-Argentine	June 24	£84,783	£82,252	25 w	£2,108,550	— £82,672
Brazilian Traction $	May.	4,206,895	4,304,160	5 m	20,139,475	+ 313,343
British Columbia $	Apr.	1,205,482	1,213,993	10 m	12,324,706	+ 575,871
Buenos Aires Lacroze	June 22	12,402	11,349	51 w	598,080	— 43,576
Burma E. Sup. Co. Rs.	May	66,077	66,320	10 m	643,528	— 22,026
Calcutta ... Rs.	June 21	121,137	104,375	24½ w	2,824,203	— 332,203
Cape Town ...	May	29,366	27,286	...	...	...
Carthagena & Herrerias	May	725	552	5 m	5,097	+ 752
Durban	Apr.	25,603	24,002	9 m	214,538	— 141
East India	May	3,892	3,698	10 m	37,824	+ 407
Kalgoorlie	Mar.	1,682	1,710	3 m	4,601	— 45
Madras (2 weeks) Rs.	June 15	45,117	46,216	22 w	506,455	+ 29,057
Para	May	15,182	15,568	6 m	88,779	+ 1,171
Port Elizabeth ...	May	7,601	7,552	...	...	...
Rangoon ... Rs.	May	121,040	149,440	5 m	757,465	+ 163,189
Shanghai ... $	May	339,833	183,409	5 m	1,555,971	— 74,199
Singapore ... ...$	May	133,000	148,000	8 m	1,083,000	+ 123,000
Winnipeg ... ...$	Apr.	536,033	516,132	4 m	2,283,837	— 3,549

RAILWAY RECEIPTS.

25th Week ended June 22nd	Passenger £	Inc. or Dec.	Goods	Inc. or Dec.	Total for Week.	Inc. or Dec. on Week.	Inc. or Dec. to Date.
G.W.R.	255,000	— 2,000	327,000	— 32,000	582,000	— 34,000	— 472,000
L.M.S.R.	548,000	— 13,000	743,000	— 92,000	1,291,000	— 105,000	—1,458,000
L.N.E.R.	376,000	— 7,000	592,000	— 83,000	968,000	— 90,000	— 723,000
S.R.	358,000	— 14,000	108,000	— 5,000	466,000	— 19,000	— 101,000
Totals	1,537,000	— 36,000	1,770,000	— 212,000	3,307,000	— 248,000	-2,754,000

ELECTRIC RAILWAYS.

Name.	Week Ended.	Latest Return. 1929.	1930.	+ or −	Aggregate. 1930.	+ or −
London Underground						
Common Fund Cos.	June 21	301,800	317,400	+ 15,600	7,481,400	+ 510,500
Lond. & Sub. Group	,, 21	44,400	46,500	+ 2,100	1,089,600	+ 80,000
Metropolitan Railway	,, 21	35,900	36,400	+ 500	918,400	+ 24,400
Liverpool Overhead	,, 22	1,761	1,538	— 223	37,766	— 2,192
Mersey Railway ...	,, 21	3,969	4,126	+ 157	115,828	+ 3,892

Digitized by Google

THE TRAMWAY AND RAILWAY WORLD
(Registered as a newspaper)
FOUNDED 1892.
Telegrams: "TRAMIGRO, ESTRAND, LONDON."

JUNE 28, 1930
ANNUAL SUBSCRIPTION: Including 12 Large Illustrated Numbers and 52 Supplements published every Saturday 25/-
SINGLE COPIES 1/-

The Tramway & Railway World
WITH OMNIBUS AND COACH SECTION - MONTHLY
Offices: AMBERLEY HOUSE NORFOLK ST, LONDON, W.C.2.

Vol. LXVII. LONDON, SATURDAY, JUNE 28, 1930. No. 32.

THE LIBRARY OF THE
JUL 10 1930
UNIVERSITY OF ILLINOIS

EMB

A Dundee Tramcar with 30-year-old Modified Body Mounted on "E.M.B." Swing Axle Truck.

NEW CARS FOR OLD

When financial considerations preclude the purchase of new tramcars, a scheme of re-conditioning will often give the desired results economically.

For fast smooth riding comfort, E.M.B. swing axle trucks equipped with E.M.B. dual air braking equipment with patent interlocked control, are an essential to any modernising scheme.

Our past experience in fitting these trucks to existing bodies is at the disposal of those wishing to bring their rolling stock up to date.

Why not let one of our Traction Engineers assist in preparing a scheme?

THE ELECTRO-MECHANICAL BRAKE CO., LTD.,
WEST BROMWICH, ENGLAND.

Digitized by Google

TENDERS INVITED.

CITY OF LIVERPOOL.

Advertising on Tramcars and Tickets.

The Tramways, etc., Committee are prepared to receive Tenders for the exclusive right of advertising upon Tramcars and Tickets for a period of five years commencing January 1, 1931.

Forms of Tender and Specification may be obtained on written application to the General Manager, Tramways Dept., 24, Hatton Garden, Liverpool.

Tenders must be enclosed in the envelope provided, and addressed to the Town Clerk, Municipal Buildings, Liverpool, and forwarded through the post so as to be received by him not later than the first postal delivery on Thursday, July 3 next.

WALTER MOON,
Town Clerk.

Liverpool.
June, 1930.

CITY OF LEICESTER TRAMWAYS AND MOTOR OMNIBUS DEPARTMENT.

The Tramways Committee invite Tenders for the supply of Inspectors', Motormen's, 'Bus Drivers' and Conductors' Overcoats.

Samples may be seen on application to, and Tender Forms obtained from, the General Manager, Humberstone Gate, Leicester.

Sealed Tenders, endorsed "Tender for Uniform," addressed to "The Chairman, Tramways Committee, Humberstone Gate, Leicester," must be delivered not later than Monday, July 7, 1930.

By order of the Committee,
H. POOL, M.Inst.T.,
General Manager.

June 25, 1930.

BLACKBURN CORPORATION TRAMWAYS AND OMNIBUSES.

Uniform Clothing.

The Tramways Committee invite Tenders for three years' supply of Uniform Clothing, samples of which can be seen, and particulars obtained, at the General Manager's Office.

Tenders must be endorsed "Uniform Clothing," and addressed to the Chairman of the Tramways Committee, Tramways Office, Church Street, Blackburn, not later than July 12, 1930.

J. H. COWELL,
General Manager.

Tramways Office,
Church Street, Blackburn.

POSITIONS VACANT.

CITY OF NOTTINGHAM.

Passenger Transport Department.

Appointment of Assistant Rolling Stock Superintendent.

The Passenger Transport Committee invite applications for the position of Assistant Rolling Stock Superintendent. The salary will be in accordance with Grade D of the Corporation's Grading Scheme, gross salary £375, net £320 17s. 2d.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

Candidates for the position must have had previous experience in connection with Tramways and Motor Omnibuses.

Applications, stating age, qualifications, and giving full details of education and previous experience, accompanied by copies of not more than three recent testimonials, and endorsed "Assistant Rolling Stock Superintendent," must reach the undersigned not later than the first post on July 12, 1930.

W. J. BOARD,
Town Clerk.

Guildhall, Nottingham.
June 25, 1930.

PLATELAYERS.

Tramway Platelayers required. State age, general experience, and wages required.—Box No. 24, THE TRAMWAY AND RAILWAY WORLD, Amberley House, Norfolk Street, London, W.C.2.

Yorkshire Switchgear & Engineering Co., Ltd.

ELECTRICAL AND TRAMWAY ENGINEERS

OVERHEAD LINE MATERIALS AND SUPPLIES.

Sole Manufacturers of
TURNER'S PATENT AUTOMATIC POINT CONTROLLERS.

Telegrams: "Controller, Leeds." Telephone: 51038 & 51039 Headingley
GROVE MILLS, MEANWOOD, LEEDS.

London Office: 103, CANNON STREET, E.C.4.
Telephone: City 3014. Telegrams: "Tramsuplim, Cannon, London."

Telephone: THE Streatham 248

HICKMAN Body Building Co., Ltd.

SEATING 32 PASSENGERS
ON
CROSSLEY "EAGLE" CHASSIS.

REAR ENTRANCE SALOON COACH

THE special form of construction in the HICKMAN Light-weight Bodies ensures:

SAFETY
CAPACITY & DURABILITY

8, Grove Road, Balham, S.W.21.

J. W. COURTENAY, Ltd.

TRAMWAY AND OMNIBUS ADVERTISING CONTRACTORS

ESTABLISHED HALF A CENTURY

Liverpool Corporation Tramways
Birmingham Corporation Tramways & Omnibuses
Portsdown & Horndean Light Railway Co.
Calcutta Tramways Company
Delhi Electric Tramways
Newcastle-on-Tyne Corporation Tramways & Omnibuses
Burton-on-Trent Corporation Tramways
Scarborough Electric Tramways Co.
Hastings & District Electric Tramways Co
Gosport & Fareham Tramways Co.
Doncaster Corporation Tramways
Gloucester Corporation Light Railways
Mandalay Electric Tramways
Ilford Corporation Tramways
Halifax Corporation Tramways
Exeter Corporation Tramways
Rotherham Corporation Tramways & Omnibuses
Dundee, Broughty Ferry & District Tramways Co.
Barrow-in-Furness Corporation Tramways
Yorkshire (West Riding) Electric Tramways Co., Ltd.
Maidstone Corporation Tramways
Croydon Corporation Tramways
Stockton & Thornaby Corporation Joint Tramways
Stockton Corporation Omnibuses
Cawnpore Electric Tramways
St. Helens Corporation Tramways
Scarborough Omnibuses
Ipswich Corporation Tramways
Derby Corporation Tramways
Portsmouth & Hambledon Omnibuses
West Riding Automobile Co., Ltd.
Newport Corporation Tramways & Omnibuses
Dearne District Light Railways
Leeds & Wakefield Omnibuses
Huddersfield and District Omnibuses
Southampton Corporation Omnibuses

AMBERLEY HOUSE, NORFOLK STREET, LONDON, W.C.2.
Telephone: Temple Bar 7630. Telegrams: "Tramigro, London."

Digitized by Google

Telegraphic Addresses and Telephone Numbers of

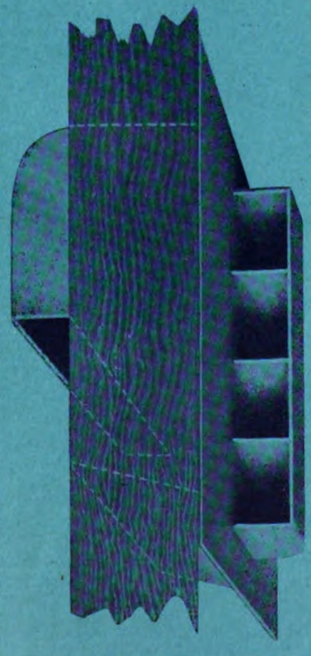
Advertisers whose Announcements appear in the Illustrated Issues of "The Tramway and Railway World."

NAME OF COMPANY OR FIRM	ADDRESS	TELEGRAPHIC ADDRESS	TELEPHONE NO
Abbatt & Co., Wm.	Bridgman Street, Bolton	Abbatt, Bolton	Bolton 313
Aerofilms, Ltd.	Colindale Avenue, N.W.9.	Aerofilms, Hendon, London	Colindale 6183-6184
Airvac Ventilators	Honeypot Works, Darlington	Airvac, Darlington	Darlington 2067
Albion Motor Car Co., Ltd.	Scotstoun, Glasgow	Automobile, Glasgow	Glasgow, Western, 3650
Allen & Co., Ltd., Edgar (Tramway Dept.)	Imperial Steel Works, Tinsley, Sheffield	Askham, Sheffield (Tramway)	Sheffield 41055
Alloy Welding Processes, Ltd.	Ferry Lane Works, Forest Rd., W'stow, E.17	Alweprol, Waltstreet, London	Walthamstow 2366
Aluminium (II), Ltd.	Bush House, Aldwych, London, W.C.2	Alutwo, Estrand, London	Temple Bar 8844
Anderson Mfg. Co., Albert & J. M.	12, Moor Lane, London, E.C.	Aetnaco, Barb, London	Metropolitan 2882
Armstrong, Stevens & Son, Ltd.	Whittall Street, Birmingham	Armstrongs, Birmingham	Birmingham 6148
Associated Equipment Co., Ltd. (A.E.C.)	Windmill Lane, Southall 23, Middlesex	Vangastow, Southall	Southall 1502 (17 lines)
Attwater & Sons	Hopwood Street Mill, Preston	Attwaters, Preston	Preston 1045 (2 lines)
Auto-Tickets, Ltd.	Laird Street, Birkenhead	Extension, Birkenhead	Birkenhead 1453
Avon India Rubber Co., Ltd.	Melksham, Wilts	Rubber, Melksham	Melksham 71-74
Baker & Bessemer, Ltd., John	Brinsworth Works, Rotherham	Brinsworth, Rotherham	Rotherham 89 and 435
Beckett, Laycock & Watkinson, Ltd.	Harlesden, London, N.W.10	Beclawat, Harles, London	Willesden 3403-4
Bell Punch & Printing Co., Ltd.	The Island, Uxbridge	Belpunch, Uxbridge	Uxbridge 460-2
B.E.N. Patents, Ltd.	92, Tottenham Court Road, London, W.1	Tooinwun, Wesdo, London	Museum 1761-62
Birkbys, Ltd.	Liversedge, Yorks	Woodfield, Liversedge	Cleckheaton 103
Brecknell, Willis & Co., Ltd.	Jacob Street, Bristol	Brecknell, 'Phone, Bristol	Bristol 9344
Brill Co., The, J. G.	Aldwych House, Aldwych, London, W.C.2	Axles, London	Holborn 6344
Bristol Tramways & Carriage Co., Ltd.	Motor Sales Department, Bristol	Automobile, Bristol	Bristol 4260
British Ackley Brake & Supply Co., Ltd.	2 & 3, Norfolk Street, London, W.C.	Kharparts, Estrand, London	Temple Bar 1088 (2 lines)
British Aluminium Co., Ltd.	Adelaide House, King William Street, E.C.4	Cryolite, Bilgate, London	Mansion House 5561
British Insulated Cables, Ltd.	Prescot, Lancs	Insulator, Prescot	Prescot 171
British Thomson-Houston Co., Ltd.	Rugby	Asteroidal, Rugby	Rugby 286
Brockhouse & Co., Ltd., J.	Victoria Works, Hill Top, West Bromwich	Brockhouse, West Bromwich	West Bromwich 431
Brown & Sons, Ltd., David	Park Works, Lockwood, Huddersfield	Gearing, Huddersfield	Huddersfield 3500 (4 lines)
Brown & Co., Ltd., John	Atlas Works, Sheffield	Atlas, Sheffield	Sheffield 20001
Browns' Dryers, Ltd.	17, Victoria Buildings, Manchester	Brownish, Manchester	Manchester City 4749
Brush Electrical Engineering Co., Ltd.	Falcon Works, Loughborough	Falcon, Loughborough	Loughborough 624
Butcher & Co., Ltd., J. H.	Moseley Road, Birmingham	Solito, Birmingham	Birmingham South 333
Cameron & Sons, John	Silvermills, Edinburgh	Leather, Edinburgh	Edinburgh 26887
Clough, Smith & Co., Ltd.	36, Victoria Street, London, S.W.1	Clufmit, Sowest, London	Victoria 7937
Commer Cars, Ltd.	Biscot Road, Luton	Komerkars, Luton	Luton 192
Connolly Bros. (Curriers), Ltd.	Chalton Street, Euston Road, London, N.W.1	Cowhide, Phone, London	Museum 3437 (4 lines)
Consolidated Brake & Engineering Co., Ltd.	Caxton House, Tothill Street, London, S.W.1	Peters, Parl, London	Victoria 2900 & 2901
Consolidated Pneumatic Tool Co., Ltd.	Egyptian House, 170, Piccadilly, W.1	Caulking, Piccy, London	Gerrard 9215 (4 lines)
Cooper, Webb-Jones & Co.	Stockwell Works, Walsall, Staffs	Stockwell, Walsall	Walsall 3890
Courtenay, J. W., Ltd.	Amberley House, Norfolk Street, W.C.2	Tramigro, Estrand, London	Temple Bar 7630
Cravens Railway Carriage & Wagon Co.	Darnall, Sheffield	Craven, Sheffield	Sheffield 41391
Crossley Motors, Ltd.	Gorton, Manchester	Motors, Gorton	Manchester City 4611
Cuxson, Gerrard & Co., Ltd.	Oldbury, near Birmingham	Dressings, Oldbury	Oldbury 355 (2 lines)
Dennis Bros., Ltd.	Woodbridge Works, Guildford	Dennis, Guildford	Guildford 1575 (6 lines)
Diamond Fibre Co., Ltd.	79, Knightrider Street, London, E.C.4	Dymofyber, Cent, London	Central 7873
Dick & Co., Ltd., W. B.	26, Grosvenor Gardens, London, S.W.1	Dicotto, Sowest, London	Sloane 3461 (5 lines)

(Continued on page iv.)

The "Ashanco" Patent 329914

AIR-INTAKE



This fitting has been evolved for the purposes of adequately ventilating the Drivers' Cabs of forward steering public service vehicles and is a means in conjunction with the "ASHANCO" No. 4 Air Extractor, of providing a steady stream of fresh air without draught. It obviates drivers becoming drowsy due to improper ventilation and so enhances the safety of passengers.

Send for Illustrated Booklet to

SOLE AGENTS:

GEO. JOHNSTON, LTD.,

173/7 Shaftesbury Avenue, London, W.C.2.

Telephones: Temple Bar 1803/4/5

Telegrams: "Slapjack, London."

Digitized by Google

Continued from page iii.

Advertisers in the Illustrated Issues of "The Tramway and Railway World."

NAME OF COMPANY OR FIRM	ADDRESS	TELEGRAPHIC ADDRESS	TELEPHONE NO.
Docker Brothers, Ltd.	4 & 6, Moor Lane, Moorgate St., London, E.C.2	Matured, London	Metropolitan 2775
Du Cros, Ltd., W. & G.	Acton, London, W.3	Voiturante, London	Chiswick 0800 (12 lines)
Edison Accumulators, Ltd.	15, Upper George Street, London, W.1	Edibatt, Edge, London	Paddington 5120
Electro-Mechanical Brake Co., Ltd.	Eagle Works, West Bromwich	Brakes, West Bromwich	West Bromwich 291
English Electric Co., Ltd.	Queen's House, Kingsway, London, W.C.2	Enelectico, Westcent, London	Holborn 6966 (10 lines)
English Steel Corporation, Ltd.	Vickers Works, Sheffield	Steelcorpo, Sheffield	Sheffield Attercliffe 41071
Equipment & Engineering Co., Ltd.	2 & 3, Norfolk St., Strand, London, W.C.2	Kharparts, Estrand, London	Temple Bar 1088 (2 lines)
Forest City Electric Co., Ltd.	4, Longford Road, Stretford, Manchester	—	—
Garrett & Sons, Ltd., Richard	Aldwych House, Aldwych, London, W.C.2	Garleis, Estrand, London	Holborn 4822
Gibson & Co., Ltd., J.	Unity Works, West Bromwich	Elliptic, West Bromwich	West Bromwich 431
Glasgow Numerical Printing Co., Ltd.	31, Finnieston Street, Glasgow, C.3	Tickets, Glasgow	Glasgow Central 6350-1
Gledhill-Brook Time Recorders, Ltd.	153, Empire Works, Huddersfield	Time, Huddersfield	Huddersfield Cent. 1069
Gliksten & Son, Ltd., J.	Carpenters Road, Stratford, E.15	Gliksten, Phone, London	East 3771
Goodyear Tyre & Rubber Co., Ltd.	Wolverhampton	Gotyruco, Wolverhampton	Wolverhampton 2321
Guy Motors, Ltd.	Fallings Park, Wolverhampton	Guymo, Wolverhampton	Wol'hpton 1141 and 1142
Hadfields, Ltd.	East Hecla Works, Tinsley, Sheffield	Hadfield, Sheffield	Sheffield 750, 2628, 2638
Hall, Lewis & Co., Ltd.	Park Royal, London, N.W.10	Axlebox, Westrand, London	Willesden 5841
Halley Motors, Ltd.	Yoker, Glasgow	Horseless, Glasgow	Clydebank 296
Hart & Sons, John T.	Wright's Buildings, Grange Rd., Bermondsey	Jonarson, London	Bermondsey 1925
Henley's Tyre & Rubber Co., Ltd.	20-22, Christopher Street, London, E.C.2	Hetewocol, Finsquare, London	Bishopsgate 8294
Hoffmann Manufacturing Co., Ltd.	Chelmsford	Hoffman, Chelmsford	Chelmsford 151
Holroyd & Co., Ltd., John	Milnrow, near Rochdale	Knit, Phone, Milnrow	Milnrow, 5322-5323
Hurst, Nelson & Co., Ltd.	Motherwell, Scotland	Nelson, Motherwell	Motherwell 258
Johnson & Phillips, Ltd.	Charlton, London, S.E.7	Juna, Charlton, London	Greenwich 0400
Johnston, Ltd., George	173, Shaftesbury Avenue, London, W.C.2	Slapjack, Westcent, London	Temple Bar 1803
Karrier Motors, Ltd.	Karrier Works, Huddersfield	Karriakar, Huddersfield	Huddersfield 1441
Kaye & Sons, Ltd., Joseph	Lock Works, Leeds	Wedge, Leeds	Leeds 21855
Kearsley & Co., Ltd., Robert	Ripon, Yorks	Kearsley, Ripon	Ripon 5
Lamplugh Spring Seats, Ltd.	New Oxford House, Hart St., London, W.C.1	Snugly, Westcent, London	Holborn 9991-5 (5 lines)
Leyland Motors, Ltd.	Leyland, Lancs	Leymotors, Leyland	Leyland 200 (3 lines)
Lodge Plugs, Ltd.	St. Peter's Road, Rugby	Lodge, Rugby	Rugby 276-277
London Electric Wire Co. & Smiths, Ltd.	Playhouse Yard, Golden Lane, E.C.1	Electric, London	Clerkenwell 1388
London General Omnibus Co., Ltd.	55, Broadway, London, S.W.1	Passengers, Sowest, London	Victoria 6800
London Oil Refining Co.	Lorco Works, Croft St., Clayton, Manchester	Premier, Manchester	Manchester East 0283-4
McGeoch & Co., Ltd., Wm.	46, Coventry Road, Birmingham	McGeoch, Birmingham	B'ham, Victoria 655 & 656
McLaren, Ltd., J. & H.	Midland Engine Works, Leeds	McLaren, Leeds	Leeds 24263
Main & Co., Ltd., A. & J.	Clydesdale Iron Works, Possil Park, Glasgow	Kelvin, Glasgow	—
Maley & Taunton, Ltd.	King's Hill, Wednesbury	Emantee, Wednesbury	Darlaston 154
Manchester Armature Repair Co., Ltd.	Ford Lane, Pendleton, Manchester	Rewinding, Manchester	Pendleton 151
Masonite, Ltd.	66, Fenchurch Street, London, E.C.3	Etinosam, Fen, London	Royal 8701
Maudslay Motor Co., Ltd.	Parkside, Coventry	Maudslay, Coventry	Coventry 3111
M.C.L. & Repetition, Ltd.	Pool Lane, Langley, Birmingham	—	—
Metropolitan-Vickers Electrical Co., Ltd.	Trafford Park, Manchester	Metrovick, Manchester	Trafford Park 190(8 lines)
Metro-Vick Supplies, Ltd.	155, Charing Cross Road, London, W.C.2	Emveesuply, Westcent, London	Gerrard 5901
Miller & Co., Henry	Mileometer Works, Walmer Road, W.11	Hubodmeter, Nottarch, London	Park 8408-8409-8410
Mills, Ltd., Wm.	Grove Street, Birmingham	Wilmil, Birmingham	Smethwick 313-4
Municipal Tramways and Transport Assoc.	3 & 4, Clement's Inn, Strand, London, W.C.2	Munitrams, Phone, London	Holborn 1653
Murex, Ltd.	Rainham, Essex	Murex, Rainham	Rainham 240-2
Nesta, Ltd.	Brunswick Square, Tottenham, N.17	Sideslip, Tottlane, London	Tottenham 3061
Newsum, Sons & Co., Ltd., H.	Gainsborough	Newsums, Gainsborough	Gainsborough 171 & 172
Peckham Truck & Engineering Co., Ltd.	Stafford House, Norfolk Street, W.C.2	Truxenpeck, Estrand, London	Temple Bar 8675
Peters & Co., Ltd., G. D.	3, Central Bldgs., Westminster, S.W.1	Peters, Parl, London	Victoria 2900, 2901
Philips Lamps, Ltd.	145, Charing Cross Road, London, W.C.2	Phillamps, Westcent, London	Regent 7731
Pirelli, Ltd.	144, Queen Victoria Street, London, E.C.4	Pirellicon, Cent, London	Central 3662
Plascom (1909), Ltd.	246, Willenhall Road, Wolverhampton	Plascom, Wolverhampton	Wolverhampton 865
Quasi-Arc Co., Ltd.	15, Grosvenor Gardens, London, S.W.1	Quazarc, London	Victoria 6236-7
Quicktho (1928), Ltd.	Point Pleasant, Wandsworth	Quicktho, Put, London	Putney 5077 and 6716
Rail Welding Co.	13, Victoria Street, London, S.W.1	Weltrajont, Sowest, London	Victoria 1363
Ransome & Marles Bearing Co., Ltd.	Newark-on-Trent	Bearings, Newark	Newark 170-1
Ransomes, Sims & Jefferies, Ltd.	Orwell Works, Ipswich	Ransomes, Ipswich	Ipswich 2201 (4 lines)
Rawlings Manufacturing Co., Ltd.	1/11, Larch Road, Balham, London, S.W.12	Rawcolifts, Phone, London	Streatham 1645 & 1646
Roberts & Co., Ltd., Chas.	Horbury Junction, near Wakefield	Roberts, Horbury	Wakefield 2746
Safety Tread Syndicate, Ltd.	Dace Road, London, E.3	Unslipping, Hackwick, London	East 6226
Sagar-Richards, Ltd.	Luddendenfoot, Yorks	Diecast, Phone, Luddendenfoot	Luddendenfoot 62
Short Bros. (Rochester & Bedford), Ltd.	Seaplane Works, Rochester	Seaplanes, Rochester	Chatham 2261
Siddall & Hilton, Ltd.	92, Victoria Street, London, S.W.1	Bricastan, Sowest, London	Victoria 6186
Smith & Co., Frederick	Anaconda Works, Salford, Manchester	Anaconda, Manchester	Manchester Central 4640
Spicers, Ltd.	19, New Bridge Street, E.C.4	Nykoping, Lud, London	City 6251
Splintex Safety Glass, Ltd.	Splintex Works, South Wimbledon, S.W.19	Splintex, Phone, London	Wimbledon 4422
Standard Telephones & Cables, Ltd.	Columbia House, Aldwych, London, W.C.2	Relay, Estrand, London	Holborn 8765 (15 lines)
Standard Underground Cable Co.	Dock House, Billiter Street, London, E.C.3	Gramercy, London	Monument 3571
Strachans (Acton), Ltd.	Wales Farm Road, North Acton, W.3	Strobus, Phone, London	Chiswick 3848-51
Sunsaloon Bodies, Ltd.	Castleford Road, Sparkhill, Birmingham	Sunsabod, Birmingham	Victoria 1283-1284
Tearne & Sons, Ltd.	All Saints' Road, Birmingham	Tearne, Birmingham	B'ham, Northern 1637
Thornley & Knight, Ltd.	Bordesley Green Road, Birmingham	Thornley, Birmingham	B'ham, Victoria 50
Thornycroft & Co., Ltd., John I.	Thornycroft House, Smith Square, S.W.1	Thornycroft, Vic., London	Victoria 8000
Tilling-Stevens Motors, Ltd.	5, Iddesleigh House, Caxton St., London, S.W.1	Petelobus, Sowest, London	Victoria 9932-9933
Titan Trackwork Co., Ltd.	Rutland Road, Sheffield	Crossings, Sheffield	Sheffield Central 798
Tramways & Light Railways Association	50, Abbey House, Victoria Street, S.W.1	Tralitrayl, Vic., London	Victoria 2110
Tramway & Railway World	Amberley House, Norfolk Street, W.C.2	Tramigro, Estrand, London	Temple Bar 2948
Tyne Metal Co., Ltd.	Hexham-on-Tyne	Floating, Hexham	Hexham 189
Underground Electric Railways Co. of London	55, Broadway, London, S.W.1	Passengers, Sowest, London	Victoria 6800
United States Steel Products Co.	36-38, New Broad Street, London, E.C.2	Steelmaker, London	London Wall 8186
United Steel Companies, Ltd.	The Ickles, Sheffield	Unisteels, Sheffield	Sheffield 60081
Vandervell & Co., Ltd., C. A.	Acton Vale, London, W.3	Vanteria, Act, London	Chiswick 3801
Vulcan Motor & Engineering Co., Ltd.	Crossens, Southport	Vulcan, Southport	Southport 87101
Westinghouse Brake & Saxby Signal Co., Ltd.	82, York Road, London, N.1	Westinghouse, Kincross, London	North 2404-2415
Westinghouse Electric International Co.	2, Norfolk Street, London, W.C.2	Wemcoexpo, London	Temple Bar 3883
Wiseman, Ltd., Alfred	Glover Street, Birmingham	Verus, Birmingham	B'ham, Victoria 560, 561
Woodhead & Sons, Ltd., Jonas	Kirkstall Road, Leeds	Forge, Leeds	Leeds 20814 & 20815
Yorkshire Switchgear & Engineering Co., Ltd.	Grove Mills, Meanwood, Leeds	Controller, Leeds	Headingley 51038

Printed for the Proprietors by Loxley Bros., Ltd., London, and Published at Amberley House, Norfolk Street, London, W.C.2.—June 28, 1930.
The Offices of THE TRAMWAY AND RAILWAY WORLD are at Amberley House, Norfolk Street, London, W.C.2.

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

UNIVERSITY OF ILLINOIS-URBANA
3 0112 005567059

Digitized by Google